TECHNOLOGY DEPT.

MAY, 1954

Telephone Engineer and Management

THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

- ★ Nationwide Customer Toll Dialing, by L. L. Ruggles
- ★ Blueprint For A Traffic Force, by Ruth E. Richards
- ★ Cable Plant Construction, by John S. Reed
- ★ Planning The C. O. Installation, by W. T. Reichel

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SERVICE, EXPERIENCE, KNOWLEDGE—

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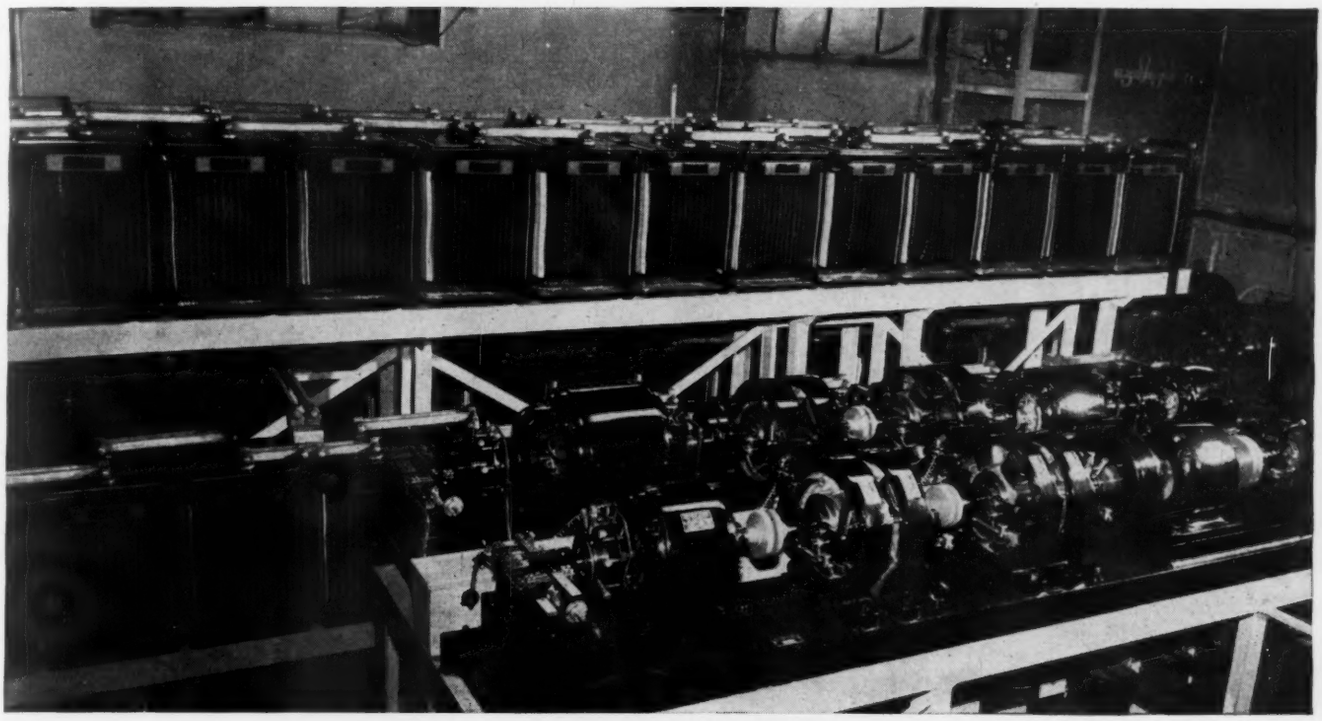
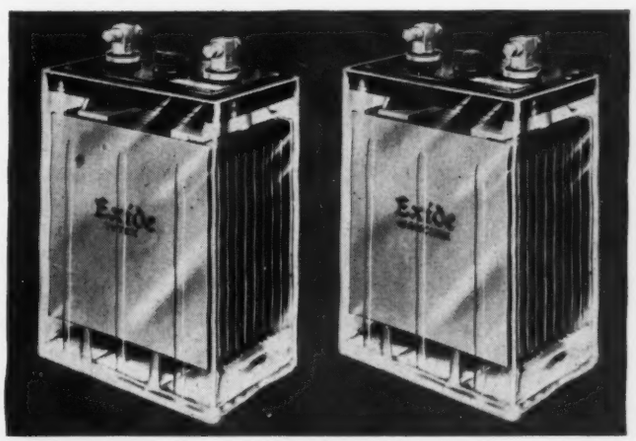
"GOOD SERVICE STARTS WITH DEPENDABLE, ADEQUATE POWER"

says Peoples Telephone Corp., users of Exide batteries for continuous float operation



THIS POWER ROOM incorporates the latest developments to insure continuity of service—under present load conditions and for future growth. Power is assured by the 46 cell Type FOE-29 Exide-Tytex battery rated at 1120 ampere hours. Charging and loading equipment consists of three diverter pole generators automatically cut in or out to meet load requirements. Exide C.E.M.F. cells allow for proper charging of the battery.

THE PEOPLES TELEPHONE CORPORATION, of Butler, Pa., serves over 24,500 dial automatic stations from twenty exchanges. This main central office serves over 15,000.



EXIDE-TYTEX and **EXIDE-MANCHEX** batteries, in sealed glass or plastic containers, are made for every type of telephone service . . . for central office and private branch exchange equipment, for a standby source of power to insure service continuity. Call your Exide sales engineer, write for details.

Your best battery buys . . . FOR ALL TELEPHONE SERVICES

Exide®

TYTEX® and MANCHEX® BATTERIES

Exide **INDUSTRIAL DIVISION,** The Electric Storage Battery Company, Philadelphia 2, Pa. • *Exide Batteries of Canada, Limited, Toronto*

Send A Copy To Your Friends ..... Without Charge

TELEPHONE ENGINEER
PUBLISHING CORP.
7720 N. Sheridan Rd.
Chicago 26, Ill.

Please send a free copy of the May, 1954, issue of TELEPHONE ENGINEER & MANAGEMENT with my compliments to the persons listed below:

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The National Telephone Magazine

Telephone Engineer *and Management*

MAY, 1954 **VOL. 58, NUMBER 5**

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FRONT COVER

500 industry members attended 59th annual convention of the Ohio Independent Telephone Association at the Deshler-Hilton Hotel, Columbus. Shown on our front cover are (l. to r.)—RAY MARTIN, Commissioner, Public Utilities Commission of Ohio; ROSCOE WALCUTT, attorney; and DANIEL W. DEHAYES, Ohio secretary-treasurer.

Published monthly by TELEPHONE ENGINEER PUBLISHING CORP. Office of Publication, Rochelle, Ill. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Ill. Subscriptions: U.S., and Possessions, $3.00 per year; Canada $3.50; in all other countries, $5.50. Single copies, U.S.A., 35 cents. Entered as second class matter at the post office at Rochelle, Ill. under the act of March 3, 1879.

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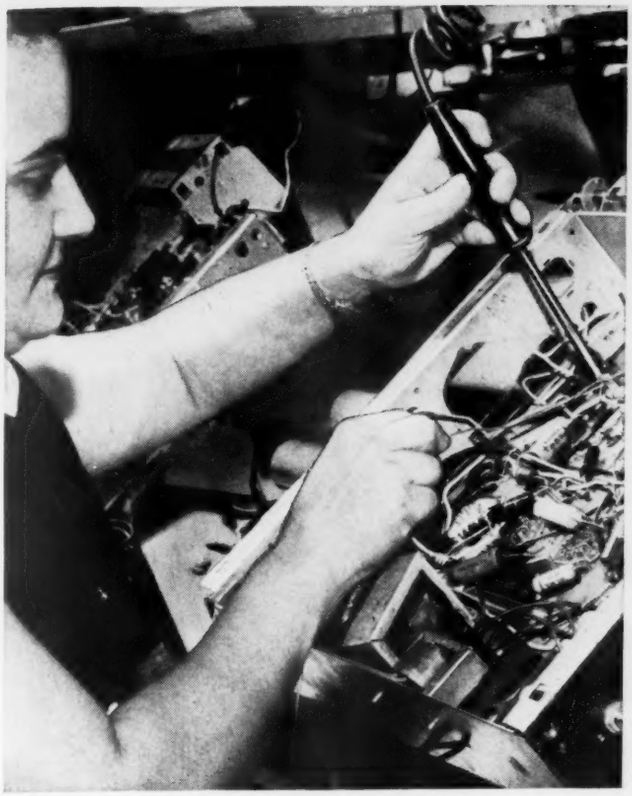

LIGHT-AS-A-PENCIL G-E MIDGET reduces operator fatigue, has longer-lasting Ironclad tip. The Midget solders like a pencil dots an "i."

EXTRA-HEAVY-DUTY G-E IRON with long-life calorized copper tip is ideal for soldering heavy-gage cans and armature windings.

You get lower costs, faster soldering with the complete line of long-life G-E irons

Select a soldering iron from General Electric's complete line for easier, faster, cost-cutting soldering. You can choose from 24 different irons with ratings from 25 to 1250 watts.

Long-life G-E Ironclad Copper Tips last up to *ten times as long* as ordinary tips. Ironclad tips combine the durability of iron and excellent heat-transfer of copper.

For Soldering Small Connections, you'll want to try the G-E Midget iron with easily interchangeable ¼-in., ⅛-in., and $\frac{3}{16}$-in. Ironclad tips. This 1¾-ounce, 25-watt iron reduces operator fatigue, makes pinpoint connections. And because the Calrod* heater is ***built right into the tip,*** you get maximum heat transfer, amazing heat recovery for an iron of this size.

For Medium-sized Jobs, try G.E.'s sturdy Lightweight iron This high-speed iron for continuous soldering takes plenty of hard use. Because the iron has a thin shank and interchangeable ¼-in. or $\frac{3}{16}$-in. Ironclad tips, you can solder tight joints without damaging small connections.

For the Bigger Soldering Jobs, General Electric has larger irons ranging from the 75-watt, ½-in. tip unit to the heavy-duty 1250-watt, two-inch-copper-tipped model. With a G-E Calrod heater *cast into the heating head,* you get unusually quick heating and high efficiency.

Contact Your General Electric Sales Office or Distributor to solve your soldering problems. Start cutting costs *and* increasing production with long-life, high-speed irons from the complete General Electric line. And for more information mail the coupon at right.

*Reg. Trademark of the General Electric Co.

Sect. 720-126, General Electric Co., Schenectady 5, N. Y.

Please send me Bulletin GEA-4519D, Industrial Soldering Irons.

Name_____

Company_____

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City_____ **State**_____

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GENERAL ELECTRIC

N-541

New high impedance ringer
Modern single coil type—more than adequate for all applications. Available in all frequencies, harmonic, decimonic and synchromonic series, plus straight line ringing.

External ringer volume control—(Optional) May be equipped with volume control or added later as required.

New improved voice transmission—10db gain with automatic compensating network for short loops. Shorter handpiece for improved transmission.

Complete new dial
—extended number plate—very quiet—long life—feather touch operation—dial adapters available for interchangeability.

Optional features
—Hook switch latch—Dial or dial blank.

Advanced mechanical arrangement
—High impact thermoplastic case—practically unbreakable. May be removed intact exposing all base mounted parts for easy access.

Distinctive design—Modern appearance . . . short lightweight handpiece . . . Extended number plate . . . External volume control.

NORTH

a fresh perspective on the modern telephone

In the three important viewpoints North's 541, the newest of new telephones, brings you distinct operational advantages.

UTILITY—Completely new dial with extended number plate.

CONVENIENCE—Fast-reading feather touch dialing. New construction with "take-away" case makes N-541 the simplest phone of all to maintain.

BEAUTY—The sleek new lines are the latest in present day styling.

the new **N-541** fully explained in bulletin T-542

by NORTH

"... AND WHAT'S MORE WE CAN MAKE 30 DAY DELIVERY!"

THE NORTH ELECTRIC MANUFACTURING COMPANY

655 South Market Street • Galion, Ohio

GraybaR TELEPHONE NEWS

EVER HEAR ABOUT DELANEY'S "SHIRT BUTTON" CABLE ?

Yes, in the '80's, an inventive gentleman named Delaney threaded bare copper wires through the holes in thousands of shirt buttons in an effort to produce a practical insulated flexible cable. History doesn't tell us the result, but we'd guess it was no worse than most first experiments.

Today, of course, make-shift cable construction is a thing of the past. In fact, you can order from Graybar a wide variety of field-proved types, all of which have been developed specifically to meet the needs of particular conditions. Whether you prefer conventional pulp-insulated, lead-jacketed cables or the newer plastic-insulated types, your local Graybar Office can meet your requirements promptly and efficiently.

TERMINALS KEEP PACE

Reliable type RU terminals are also available with a plastic stub for use with plastic-insulated cables. Completely weatherproof, this terminal can be installed either stub up or stub down. It is available in 6-, 11-, and 26-pair models.

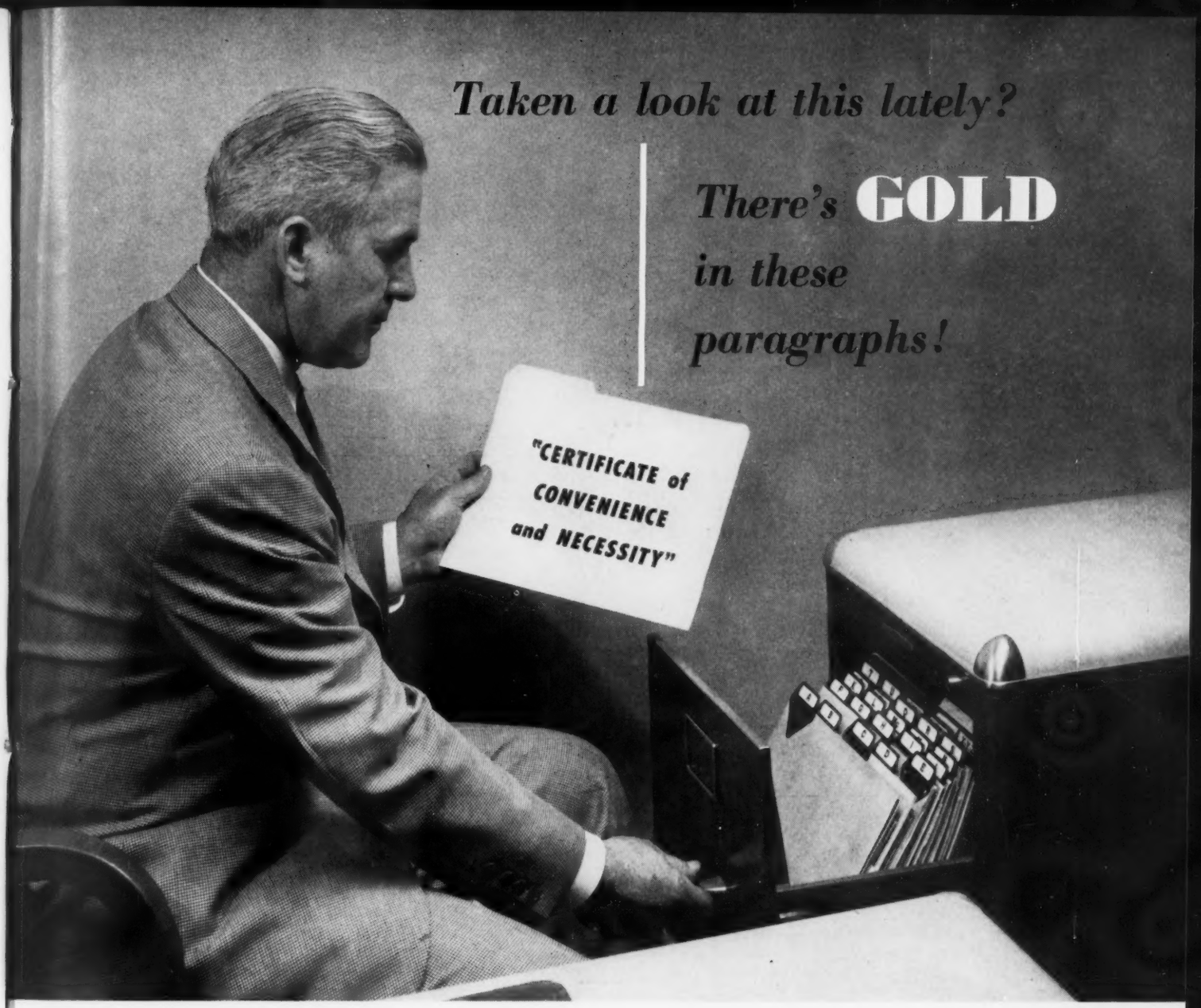
OFF LIMITS FOR LINEMEN

Checking insulation on the lines was a thankless, heartbreaking job in the early days of the telephone industry. A long handled brush and a bucket of pitch was the principal equipment. And after plastering insulators and splices on miles of line, the lineman was such a mess that he was barred from almost every tavern.

...A MODERN LINEMAN has a far more complex and scientific job to do. And, Graybar's nation-wide network of offices and warehouses stands ready to serve him with a complete line of splicing materials, terminals, special tools, and other accessories. 432-225

Call Graybar first for...

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
Graybar Building, New York 17, N. Y.
IN OVER 110 PRINCIPAL CITIES



The very title of the franchise under which you operate contains a gentle nudge to your commercial department . . .

"necessity" . . . keeps you in business supplying the basic twenty-four-hours-a-day facilities of telephony.

"convenience" . . . points to all the extra services you can render to merit and profit by extra *revenue.*

Take a look with us—through the next three pages —at some products which, with just a little "push," can start your monthly income upward.

Turn page for revenue-boosters

TAKE ADVANTAGE OF "CONVENIENCE"

Stromberg-Carlson Multi-line Systems

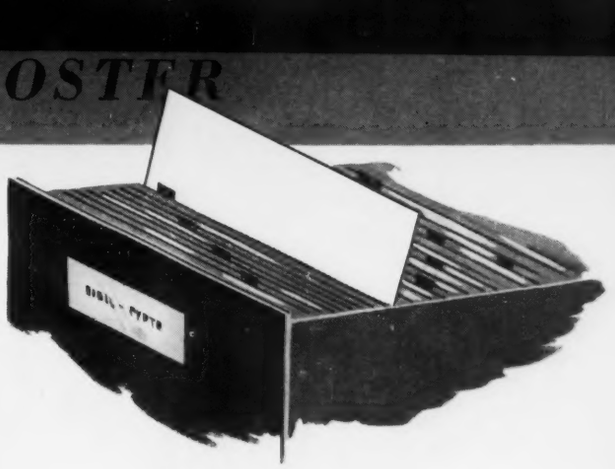
The "1573" Two-line Telephone

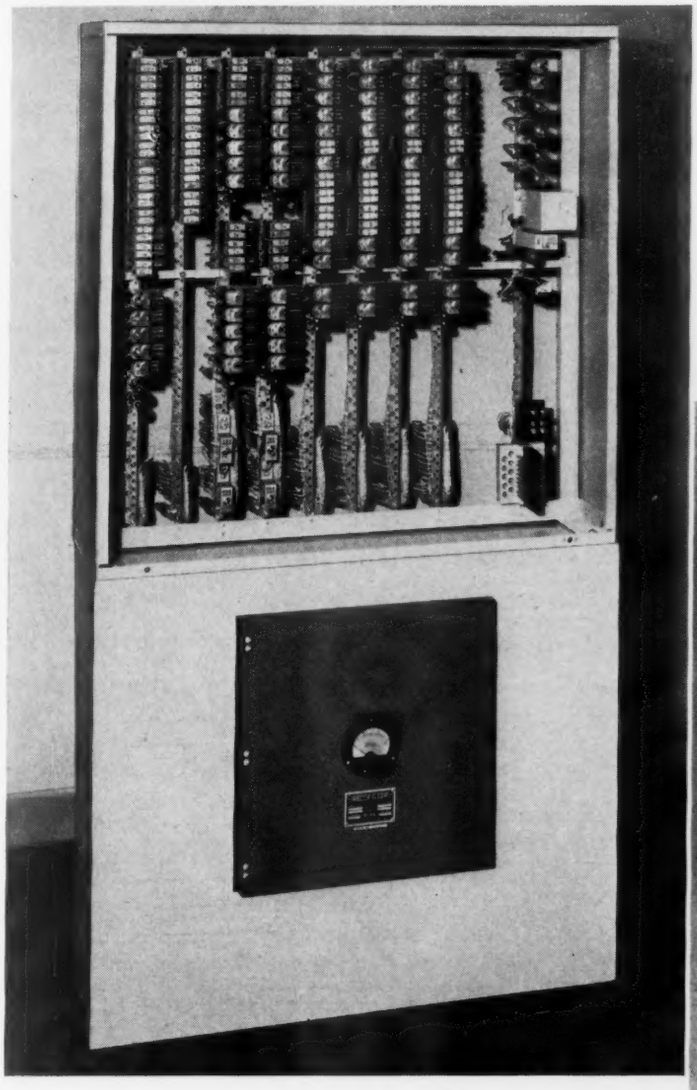
For the executive-and-secretary combination in a small office . . . for the retail store with several telephones, each accepting orders . . . for private internal service linked to a manual PBX for central office connections . . . here's the ideal system. Each "1573" provides two trunk lines with holding, plus a local line for intercom service. Tell your subscribers—"Here's a miniature PBX to put right on your desk!"

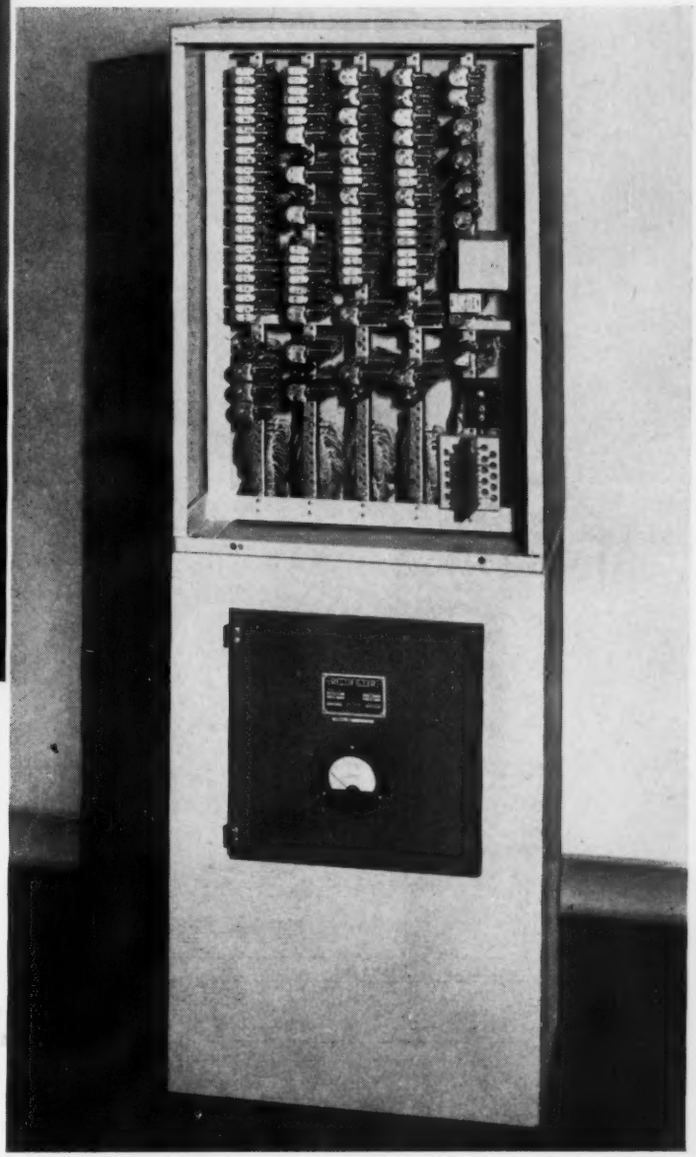
The "6K" Telephone System

With this ingenious instrument, plus a relay cabinet, a terminal box and a simple power pack, you give a subscriber the last word in shared-line service. The 6 buttons may be used in a wide variety of combinations—to perform functions of Line, Hold, Intercom, Signal or to be reserved for future use. Visual signals are provided. And, like all "1500" series equipment, the instrument itself is utterly modern in appearance.

Stromberg-Carlson® *Factory, General Offices a R*



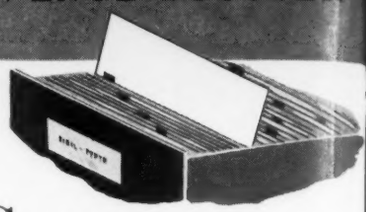




Dial PBX Systems

The "1573" and the "6K" equipment shown on the opposite page make up a dial PBX when combined with either the "2-10" or the "4-20" system. Differing only in capacity (two simultaneous talking paths for up to 30 telephones or four paths for up to 60), each system makes possible fully selective, private-conversation internal calls. Modern offices and plants will welcome this service—and gladly add to *your* revenue while they use it! Complete details of any or all of these systems available on request.

TAKE ADVANTAGE OF "CONVENIENCE"... IT'S A REVENUE-BOOSTER



Stromberg-Carlson Internal Systems

"1270" Series Convenience Systems

Architects, banks, clubs, dental centers, employment agencies—you can find in the whole A-to-Z range of smaller establishments likely prospects for these long-favored systems. Requiring no attendant, they provide both trunk and intercom service, 24 hours a day. Common talking, selective ringing and optional secret service are available. The systems offer either 2 or 3 trunks and line capacity up to 10 stations.

Multiple Line Key Turrets

Here's the backbone of multi-line services, specially recommended for the type of office or industry where "Order Board" facilities are needed, but economy of both space and cost is important. Made in multiples of 3's, Stromberg-Carlson turrets offer up to 9 lines, with keys that furnish Answer, Originate and Hold functions on each line and visual lamp indications. They will save your subscriber's time and nerves and help him never to lose an order because of inefficient telephone distribution. And they'll make *you* extra revenue.

Stromberg-Carlson®

Makers of Famous XY® Equipment, Telephones, Switchboards, Sound Equipment and Electronic Carillons; Industrial, Intercommunication Systems; Television, Radio and Radio-Phonographs.

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

Dear Sir: May 15, 1954

FIRST USITA NATIONAL ADVERTISEMENTS:—Advertisements on pages 27, 28, 29 of this issue are the first ads in the national advertising program of the United States Independent Telephone Association. The ads were published in the May 10 issue of Time & the May 14 issue of U. S. News & World Report. Additional ads will be published in these two publications & in Country Gentleman during the next 12 months.

Mats of the national ads are being prepared in convenient sizes for use over company signatures in local newspapers. The mats will be available from the Telephone Advertising Institute, 205 N. LaSalle St., Chicago, Ill., which is cooperating with the USITA National Advertising Task Force in setting up distribution of the mats. Bill inserts, tying in with the USITA program, are also being planned.

REA GETS FULL FUNDS ALLOTMENT FOR TELEPHONE PROGRAM: — The Rural Electrification Administration was given the full $75,000,000 telephone loan authority for the upcoming fiscal year, requested in President Eisenhower's budget message, by House Appropriations Committee in reporting out Agriculture money bill last month. REA also received $3,013,000 in telephone administrative funds, as asked in budget message.

Figures compared with $67,500,000 loan authority for the present fiscal year, ending June 30 & $2,956,000 administrative funds.

In hearings before Agriculture subcommittee earlier, REA Administrator Ancher Nelsen & other officials of agency said telephone program continues to be limited by shortage of qualified engineers & management personnel available to borrowers.

J. K. O'Shaughnessy, assistant administrator in charge of telephone program, said that $49,000,000 of $156,616,000 allocated as of Feb. 28, 1954, had actually been advanced to borrowers. Another $55,000,000 he declared, has been cleared for advancing to borrowers, in that the latter have met all requirements to get the money, including satisfying equity requirements & obtaining state commission approval of rate schedules.

Deputy Administrator Fred Strong, answering questions of subcommittee members, said time is "very close at hand" in which REA will have its backlog of telephone applications into shape, so that it can provide rapid service on loan requests. Ten months ago, he declared there was "a very substantial backlog of applications, some of which had been on the shelves for three years."

GULF STATES TEL. WINS SAFETY AWARD:—During 1953, 60 regular drivers of fleet units of the Gulf States Tel. Co., Tyler, Texas, drove telephone company cars and trucks a total of 352,012 miles with only 3 accidents. That record won the Texas Safety Association 1953 Industrial Fleet Safety Contest for the Gulf States Tel Co. in group II, which included communications fleets in local operations. For total distance traveled

in 1953, equal to almost 15 times around earth, three accidents that did occur involved only damage to vehicles but no driver or passenger suffered any injury. Presentation of award was made at 15th Annual Texas Safety Conference held at Dallas recently. This is 2nd time Gulf States' Fleet Drivers have won award. In 1940, drivers traveled 189,412 miles in one year without an accident or traffic violation.

EXPANSIONS & IMPROVEMENTS: – United Tel. Co., Inc., converted Spearville, Kans. to dial operation . . . . General Tel. Co. of Ky. converted Olive Hill, Ky. exchange to dial operation.

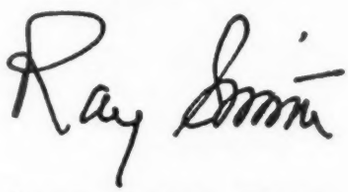
INCORPORATIONS:–Pea Ridge (Ark.) Tel. Co., Inc., granted charter. Incorporators are: Ana Wilson, Floyd T. Wilson & L. W. Bush . . . . C. & B. Tel. Co., Inc., Rantoul, Kans., completed incorporation procedure. Thomas E. Gleason is resident agent . . . . Beggs (Okla.) Tel. Co., Inc., granted charter. Incorporators are: Forrest Hand, Nonie Hand & Allowe Hand.

CO-OP ACTIVITIES:–Kansas Corporation Commission granted Craw-Kan Tel. Co-op Assoc., Girard, authority to provide service in 3 counties. Co-op will spend about $1,057,000 for new construction.

REA TELEPHONE LOANS TO 252 BORROWERS TOTAL $162,500,000:–Since its rural telephone program began in 1950, Rural Electrification Administration has approved loans totaling $162,500,000 to 252 borrowers to bring new improved service to about 366,000 farms and other rural places, the Agriculture Department reported last month. Of the total borrowers, 134 are farmer-owner cooperatives & the rest are commercial companies.

REA Administrator Ancher Nelsen said that during fiscal year ending June, REA expects to lend about $74,000,000. During first quarter of 1954, REA approved 31 telephone loans in amount of $11,838,000, compared with 26 loans for $8,433,000 in the same period of last year.

FREE LITERATURE:–Comprehensive digest on latest chemical brush spraying techniques is available from Thompson Chemicals Corp., Utilities Div., St. Louis 3, Mo. . . . Bulletin 72-B-P4 gives detailed engineering data on Lenkurt Type 72-B microwave equipment. For your copy write Automatic Electric Sales Corp., 1033 W. Van Buren St., Chicago, Ill. . . . New 8 page Bulletin (S.P.) describes Safety-Pull Ratchet Lever Hoists. Write Coffing Hoist Co., Danville, Ill. . . . New 52-page manual that enables reader to easily understand Thermistors has been published by Carboloy Dept., General Electric Co., Detroit 32, Mich. Request Manual TH-13. . . . New 8-page, pocket-size booklet on storage battery maintenance is now available from Electric Storage Battery Co., Box 8109, Philadelphia 1, Pa. Request Form 5063. . . . Story of how emergency power units can prevent loss of time, production, customers and lives is outlined in new 8-page booklet, "When Power Fails," published by Caterpillar Tractor Co. This booklet, form D432, is available at Caterpillar Dealers, or by writing Caterpillar Tractor Co., Peoria, Ill.



Ray W. Smith, Editor

TIRELESS ACTION

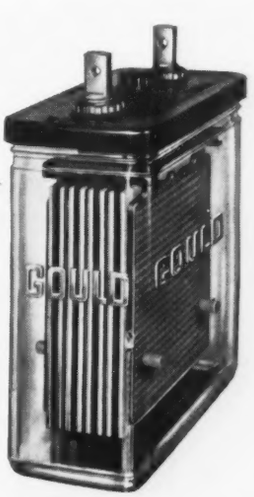
THANKS TO BATTERY POWER!

Tireless, unfailing action—that's what your stationary batteries have got to give you if you're to meet emergencies successfully. That's what you get with Gould Planté Batteries.

The PURE LEAD positive plates of these finest stationary batteries available today constantly renew active material as they float. That's why Gould Plantés have a service life far greater, a per annum cost far less than ordinary batteries.

For action when you need it, standardize on Gould Planté.

Specify GOULD PLANTÉ— The Aristocrat of Stationary Batteries



GOULD *INDUSTRIAL BATTERIES*

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

©1954 Gould-National Batteries, Inc.

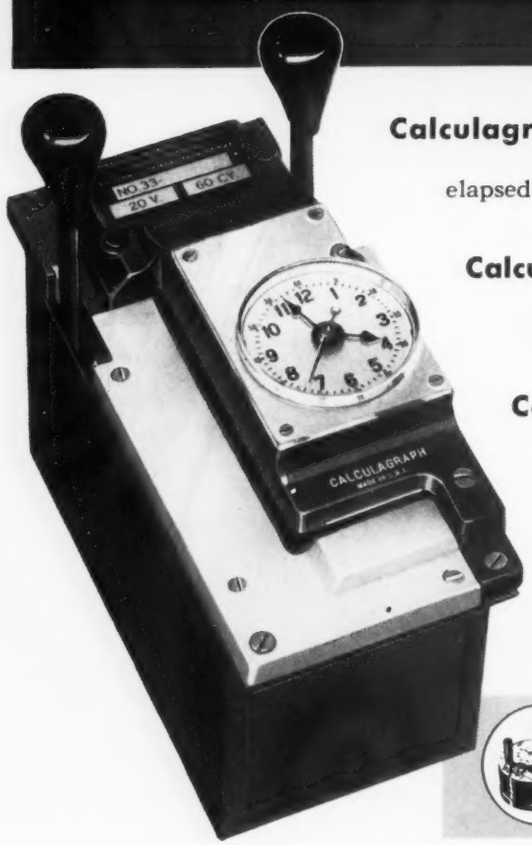
Spotlighting toll service—

CALCULAGRAPH

...speeds toll service

...protects toll revenues

Photo courtesy of
Kellogg Switchboard and Supply Company



Calculagraph automatically figures toll time – Eliminate time-consuming, service-slowing manual figuring of elapsed time on toll calls. Calculagraph is quicker, easier, completely accurate. There is no possibility of clerical errors.

Calculagraph is accurate to the second – Precision calculations by Calculagraph are accurate down to the last second... make it possible to collect all the revenue due on every toll call. Calculagraph records are indisputable.

Calculagraph prints permanent toll records – Elapsed time records printed on permanent toll tickets make accounting methods simpler, more efficient. Tickets are easier to read, permanently legible, available for reference at any time.

AUTOMATIC TOLL TIME CALCULATING AND RECORDING PAYS! Complete information is contained in the Calculagraph Bulletins available in a handy file folder. Write for your copy to Dept. TE.

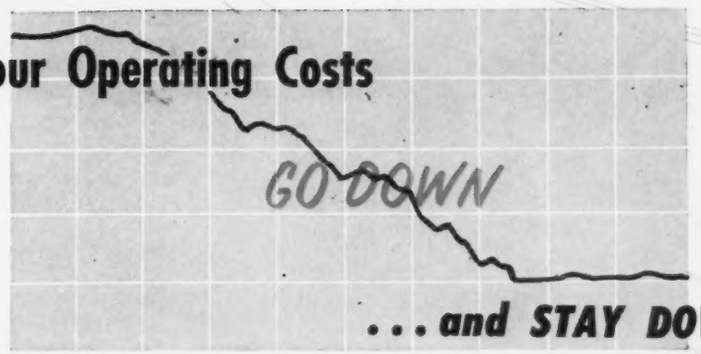
CALCULAGRAPH COMPANY
HARRISON • NEW JERSEY

THE STANDARD OF ACCURACY . . . SINCE 1892

When Long-Lasting **Copperweld** TRADE MARK

LINE WIRE

GOES UP...



COPPERWELD PROVIDES BETTER VOICE TRANSMISSION THAN ANY OTHER HIGH-STRENGTH CONDUCTOR

Want a strong line wire that really cuts your operating costs and at the same time offers excellent electrical conductance plus complete protection against rust? Then you want Copperweld* Line Wire—the most economical conductor for all types of communication and signal lines.

Having a thick layer of copper inseparably molten welded to a strong steel core, Copperweld Line Wire provides the ideal combination of superior voice transmission with the strength of steel. Its voice transmission characteristics—better than any other high-strength conductor—are an important consideration in keeping customers satisfied.

The permanent high strength of Copperweld permits safer long spans that stand up under severe operating conditions. This means economies all along the line. You save on poles, hardware, accessories and construction costs.

Consider all the advantages of Copperweld Line Wire and you'll see why it's unequaled for long life and dependable performance. And, at the same time, it gives you lowest annual cost. Write us today for complete technical data.

*Trade Mark

COPPERWELD STEEL COMPANY
Glassport, Pa.
SALES OFFICES IN PRINCIPAL CITIES

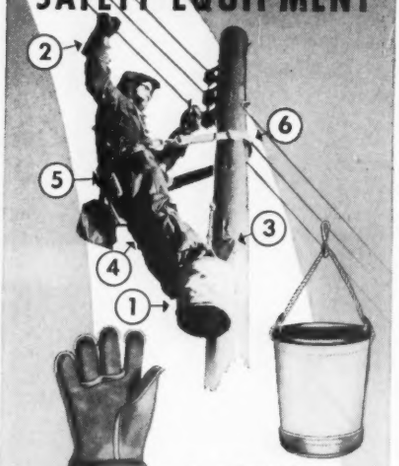
Copperweld Line Wire

STRONG, NON-RUSTING

Costs Less... because it lasts longer!

SOLD BY LEADING DISTRIBUTORS

EXPERIENCED LINEMEN
CHOOSE Bashlin's
SAFETY EQUIPMENT

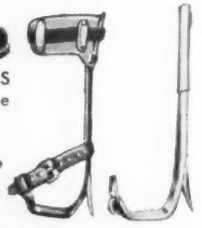


1. BASHLIN'S Tool Bucket

2. BASHLIN'S Work Glove

3. BASHLIN'S Chippewa Boots

4. BASHLIN'S One Piece Steel & Aluminum Adjustable Climbers



5. BASHLIN'S Safety Belts

6. BASHLIN'S Safety Straps

WRITE TODAY for this CATALOG

W. M. BASHLIN CO.
GROVE CITY, PA.

Mostly About People— Across The Editor's Desk

New "Colonel"

FRIENDS OF *Colonel Gilbert A. Klein*, president of the Southern Continental Telephone Co., Cookeville, Tenn. will be glad to hear that Gil and "Veep" *Alben W. Barkley* were class-mates in the most recent class of Colonels named by the Governor of Kentucky. There are other considerations in being a Kentucky Colonel than just a title — one of them being unswerving loyalty to "kissin' whiskey" (bourbon, that is) and another is almost compulsory attendance at the Kentucky Derby. The good news on Gil's appointment came from *Homer Wright*, vice president of Southern Continental's Kentucky properties, who gets our "mint julep award" for the month!

L. A. Graham Retires

ON APRIL 1ST *L. A. Graham*, manager of the Farmers and Citizens Telephone Co., Union Star, Mo., hung up his climbers and called it a day — just 57 years after he entered the telephone business. Mr. Graham is a director of the Theodore Gary Chapter of the Independent Telephone Pioneer Association. During his long service to Independent telephony Mr. Graham served in every part of the business mostly in the states of Iowa and Kansas, but mostly in Missouri.

"Rodormer Memorial Party"

YOUR EDITOR and the many friends of the late *George Rodormer* are much pleased over the recognition given to the memory of George by the many state telephone associations throughout the country. The association bulletins marked his passing with much regret and called attention to his graciousness and hospitality shown each year during national convention time when his "Rodormer's Roundup" played host to his legions of friends. We are told that George's associates are planning a continuation of these yearly get-togethers as a Rodormer Memorial Party which is a most befitting honor to ths great friend of the Independent industry.

Nebraska Cutover

THE BIG SMILE that has belonged to *D. E. McGregor*, manager of the Nebraska Central Telephone Co. for the past month was caused by the conversion of the Shelton, Nebr., exchange to dial operation recently. The April 15 issue of the SHELTON CLIPPER devoted over three full columns of their newspaper in giving the story of the conversion and the history of the company.

Husband & Wife Team

IN OUR LAST issue we carried a follow-up article on husband and wife teams serving our industry by traveling the country and the telephone conventions. Here is another team that deserves much recognition as each of them represent different companies that are integral parts of the industry. *Mr. and Mrs. D. J. Neale* of Topeka, Kansas, are familiar faces to Independent folks from each end of the country. Mrs. Neale is boss lady of the Cable Spinning Equipment Co. and her husband holds that position with the Neale Construction Co. and the Telephone & Power Supply Co.

1954 *Composite Catalog*

IT IS OUR plan to mail the 1954 Edition of our TELEPHONE COMPOSITE CATALOG & BUYER'S DIRECTORY to each of the readers of this publication on May 15. It will be distributed to EVERY telephone company in the Western Hemisphere. As customary, there will be no charge for this volume. It is sent to you with the compliments of the manufacturers and suppliers of our industry represented within its covers, and the Staff of the Telephone Engineer Publishing Corp. *John G. Reynolds* is the Editor of the 1954 edition which the publisher feels is the best we have ever produced.

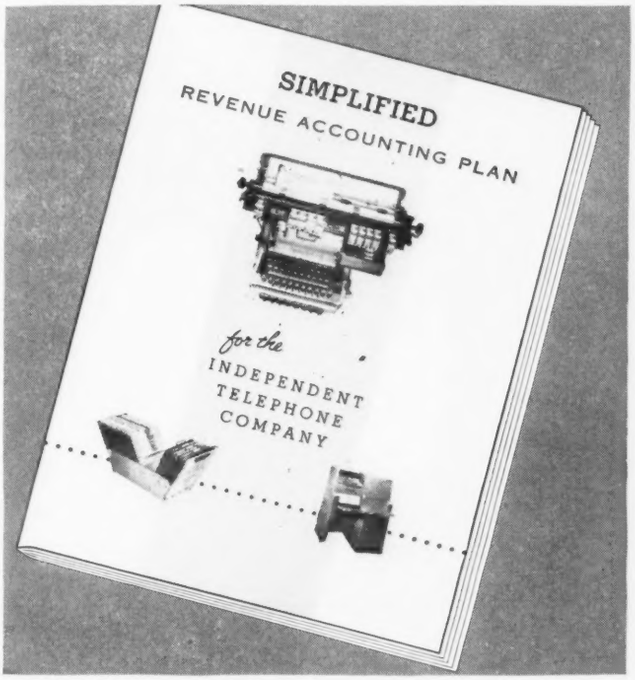
REMINGTON RAND

Have You A Copy Yet of This New Plan for Simplified Revenue Accounting?

After seeing this new accounting system at the USITA convention, one executive ordered it for immediate installation. Enthusiastic executives from many other companies asked for a copy of the descriptive booklet. Everyone agreed it's *the first complete system* to be developed for the independent telephone companies.

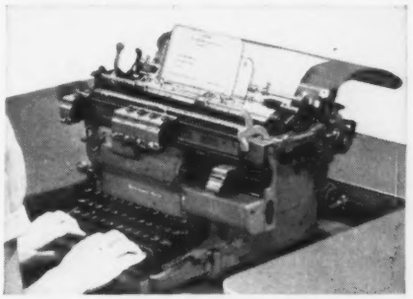
The new plan offers rapid, economical accounting methods at a price any independent can afford. Tested techniques are combined with fresh ideas in an integrated system that 1) develops up-to-date records of revenues due the company; 2) provides means of collecting these revenues quickly and economically; 3) safeguards vital source documents at point-of-use.

All the recommended methods and procedures are designed to simplify work and save costs, without deviation from accepted accounting practice. The new plan is flexible. It fits into any operation with a minimum of adjustment, can be adopted a step at a time.



Booklet X1463 – forty pages of valuable information on cutting costs and licking billing problems. And it's free. All you have to do is to write for it!

With Kolect-A-Matic, a single clerk handles all accounting for 3,000 accounts housed in one *Safe-Desk ... with point-of-use fire protection for your source of revenue.*



Many at the Convention showed surprise at the output and price of the Low-Cost Bookkeeping Machine. Its simple operation eliminates costly training and premium salaries.

Users testify that microfilm equipment pays for itself in a year, gives a big boost to subscriber service. You have three different cameras to choose from, depending on your needs.

Highlights and benefits of the new system

The plan speeds and simplifies billing by centralizing record data. *One* card form – the subscriber's office record – serves as application, rate card, credit and installation history and as the basis of all subsequent records. *One* visible pocket is the "home" for all data and documents used in revenue accounting: subscriber's office record, accumulating toll tickets, and unpaid bills. Colored signals show the status of *all* accounts at a glance, pinpoint delinquencies and indicate the need for corrective measures.

Economical machine bookkeeping is a feature of the system. Toll and subscriber charges are posted with typewriter speed and ease on the Low-Cost Bookkeeping machine. Entry is made simultaneously on statement and register, while the machine automatically obtains proof of all postings, gives control totals and shows balances.

An alternate billing method eliminates the work of itemizing toll charges on a separate statement. You can *microfilm* toll tickets and include them with the bill. Experience shows drastic reductions in complaints and office refiguring when subscribers receive the actual tickets. One user declares it saves 60% of the former labor in handling toll charges ... and cuts filing space 99.2%.

There are many other profitable and ingenious features to the simplified revenue accounting plan. Your nearest Remington Rand office can demonstrate the forms, equipment and procedures involved in the first *complete accounting system* developed for the independent telephone industry. And a wealth of information is yours in booklet **X1463.** Simply mail in the coupon.

Remington Rand INC

Room 1572 315 Fourth Ave., New York 10

Yes, I'd like a copy of Booklet X1463 "Simplified Revenue Accounting Plan for The Independent Telephone Company."

Name_____

Firm_____

Address_____

City_____ Zone____ State_____

TEL-3

– Profit-Building **IDEAS** For Business –

Would Your DIRECTORY Win a Beauty Contest?

● Are you proud of the physical appearance of your directory? Is it clearly printed? Does its format offer all the classifications that encourage "multiple listings" for increased advertising revenue? Is it a good buying guide of your service area? Is it doing a good public relations job for your company? To get the answers to these and other questions, you're invited to call Loomis today.

KNOW-HOW TO SOLVE YOUR DIRECTORY PROBLEMS

● 666 cities and towns in 20 states are served by the 234 directories that retain Loomis services.

LOOMIS

ADVERTISING COMPANY

"Where to Call"

FT. WAYNE, IND.
229 E. Berry St. . . . EAstbrook 3477

ST. LOUIS, MO.
506 Olive . . . GArfield 1-3700

OMAHA, NEBR.
Omaha Nat'l Bank Bldg. . . . ATlantic 0188

KANSAS CITY, MO.
810 Baltimore . . . HArrison 1270

PHILADELPHIA, PA.
1201 Chestnut . . . RIttenhouse 6-4440

BALTIMORE, MD.
1229 North Charles . . . VErnon 7-0642

ANSONIA

Ankoseal®

THE ALL-PLASTIC CABLE

CHEMICAL RESISTANT

Ankoseal defies the chemicals—oils, acids, alkalis and other destructive substances that attack non-plastic cables. Use Ankoseal on your next job.

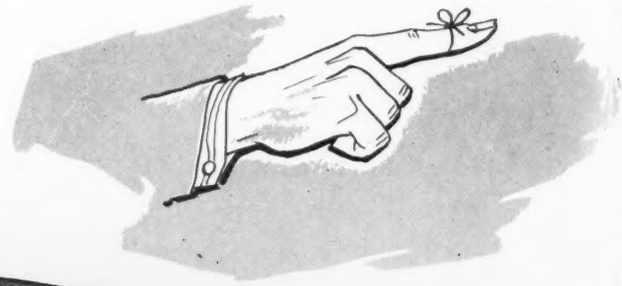
Ankoseal also is—

WEATHERPROOF
LIGHTER WEIGHT
ELECTRICALLY SUPERIOR
WATERPROOF

THE ANSONIA
WIRE & CABLE COMPANY

ANSONIA, CONNECTICUT • PHONE: ANSONIA 4-3306

Remember this basic fact..



act . . . .

KELLOGG

K-500 TELEPHONE

speaks best for itself!

Remember, too . . . the new Kellogg K-500 Telephone completely excels all long-accepted standards for outstanding performance in the Independent Field. When you test and compare it—feature by feature and overall—the K-500 will prove itself . . . clearly and distinctly superior to any telephone you have ever known!

- **Manufacture and sale of the Kellogg K-500 Telephone is made possible by a patent license agreement between Western Electric Company, Incorporated, and International Telephone and Telegraph Corporation.**

HERE'S PRINTED PROOF . . . GET YOUR FREE COPY TODAY!

This new 12-page K-500 Bulletin brings you detailed, illustrated data on every superior advantage offered by the Kellogg K-500 Telephone. Reserve a copy for your personal file—mail your request today!

KELLOGG DIVISION OF IT&T **KELLOGG SWITCHBOARD AND SUPPLY COMPANY**

A Division of International Telephone and Telegraph Corporation

SALES OFFICE: 79 WEST MONROE STREET, CHICAGO 3, ILLINOIS

Warehouses: Chicago 38 • Kansas City 1 • Mansfield, Ohio • St. Paul 4 • Dallas 2 • San Francisco 3

Branch Offices: New York 7 • Portland 5 • Los Angeles 13

Export: International Standard Electric Corporation, New York 7, N. Y., U. S. A.

KELLOGG

Your nearest Kellogg shipping point is never far away — KELLOGG'S six conveniently located warehouses and more than 100 supplier distribution points throughout the country assure you fast, economical delivery of guaranteed line supplies.

Your Nearest Kellogg Shipping Point Is Never Far Away!

KELLOGG — DIVISION OF IT&T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
Sales Offices: 79 W. Monroe St., Chicago 3, Ill.
A Division of International Telephone and Telegraph Corporation

Send Your Next Order for Supplies To:

BRANCH WAREHOUSES AND OFFICES:

6000 W. 51st Street
Chicago 38, Illinois

410 N. Syndicate Avenue
"Midway Area"
St. Paul, Minnesota

1663 Mission Street
San Francisco 3, California

4501 Truman Road
Kansas City 1, Missouri

1515 Turtle Creek Blvd.
Dallas 2, Texas

1555 West Fourth Street
Mansfield, Ohio

BRANCH OFFICES:

406 S. Main Street
Los Angeles 13, Calif.

720 S. W. Washington Street
Portland 5, Oregon

No Snubbing or Rubbing. Insulation damage can be greatly reduced with Reliable Drop Wire Clamps. Wedge-shaped, they grip twisted or parallel drop wire tightly, and permit free swinging. All wear is placed on clamps. RELIABLE ELECTRIC CO.

•

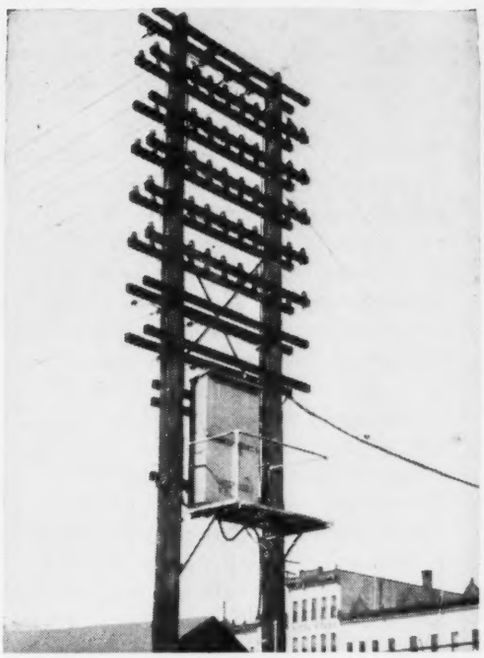
Drier Than a Desert! The sure way to dry splices in lead covered cables is to sprinkle Drierite Dessicant granules in among the conductors. This W. A. HAMMOND DRIERITE COMPANY product will not harm the sheath, conductors or insulation.

HEADQUARTERS FOR SUPPLIES

Uniform High Quality is the distinctive characteristic of all PORCELAIN PRODUCTS, INC., insulators and wire holders . . . all carefully produced to exacting specifications and guaranteed to give top quality in insulation.

•

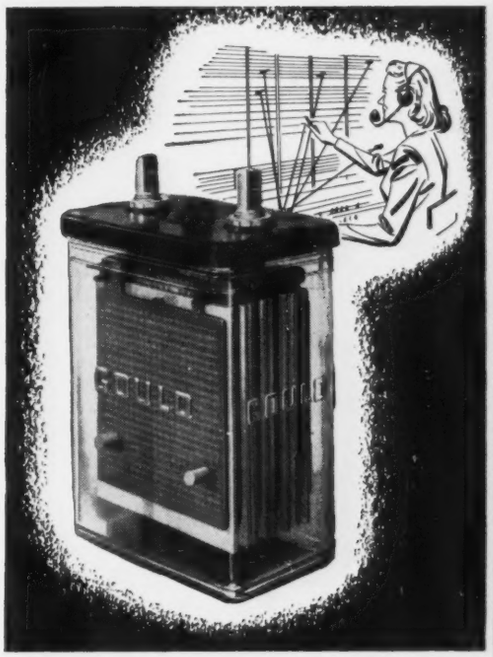
Cable Lashing Wire for use with modern Cable Spinners, Crapo Galvanized ("C" Coated) Lashing Wire available in .091" and .061" diameters. Wire also available in .045" and .065" diameters. Made by the INDIANA STEEL & WIRE CO.



Economy in Overhead Construction is assured when crossarms made by the CONTINENTAL CROSS-ARM COMPANY, INC., are a part of your wire and pole installations. Fully seasoned American woods — built to sound standards of dependability.

•

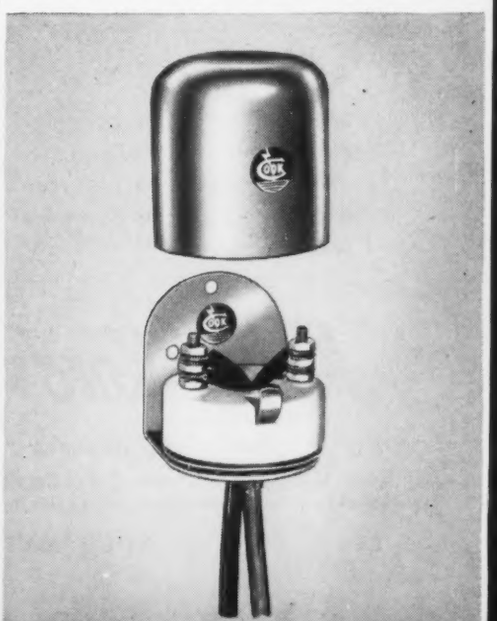
Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-Core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-close circuits. KESTER SOLDER COMPANY.



Outstanding Battery Performance is yours when you choose Gould Plante' Batteries. Thick, grooved, pure lead positive plates give many years of trouble-free service! Made by GOULD-NATIONAL BATTERIES, INC. —they're the finest money can buy.

•

New and Improved! The Cook Testerm Drop Wire Connector built of lighter alloys provides better insulation, costs less to ship, is simpler to install and improves the connecting methods of subscriber drops to open wire. COOK ELECTRIC COMPANY.



Extra Long

Koiled Kords*

used as Line Cords Add Flexibility to Telephone Service

★ They reach from one side of the room to the other . . .

★ In ranch homes, from living room to bedroom or kitchen . . .

★ Provide the benefit of multi-station service where extensions would not usually be ordered.

★ Line cords are available in 10′, 15′ and 25′ extended lengths and retract to 16½″, 25″ and 42″ respectively.

Specify KOILED KORDS retractile receiver and line cords on all new telephones — order through your independent telephone supplier.

© 1954

Koiled Kords

Incorporated

Box K, New Haven 14, Conn.

*Koiled Kords is a trademark of Koiled Kords, Inc.

Know Your Commissioners—

Meet

Hon. George R. Perrine

This is the fourth of a series of articles introducing members of state and national regulatory commissions and officers, directors and chairmen and committee members of the National Association of Railroad & Utilities Commissioners.

PROBABLY few of his friends know it, for he is a modest man about such things, but the Honorable George R. Perrine, Chairman of the regulatory commission of the important and populous state of Illinois, has been listed in "Who's Who" because of his writings on the subject of psychology. He would be listed there still, no doubt, had he bothered to keep his listing up to date.

But the head man of the Illinois Commerce Commission — which is what they call the regulatory body in that state — is too busy to write about psychology. However, he can, and does, practice it.

Hon. George Perrine has behind him quite a bit of experience in utility regulation matters, including some seven years, to 1949, as Assistant Commissioner of the Illinois commission, principally on the special assignment of representing the State of Illinois in joint board hearings with the Interstate Commerce Commission.

He was appointed Chairman of the Illinois Commerce Commission in January, 1953, by incoming Governor William G. Stratton.

His long experience and capabilities resulted in his appointment as a member of the Executive Committee of the NARUC and to the NARUC Special Telephone Committee.

Mr. Perrine, a native of Illinois, is a lawyer, a banker, a leader in civic affairs and a prominent Republican, as well as a regulator. His home is in Aurora, Illinois.

His father, Harvey Perrine, was for many years Treasurer of the Illinois Lodge of the Brotherhood of Railroad Trainmen. Mrs. Perrine's father is W. H. Tomhave, the international authority on animal husbandry, whose books on that subject have been translated into many languages and are used as text books by leading universities. The Perrines have two daughters and a son.

HON. GEORGE R. PERRINE, Chairman of the Illinois Commerce Commission.

Following his graduation from the University of Southern California and, in 1933, from the Law School of the University of Wisconsin, Mr. Perrine entered the practice of law in Aurora and in 1937 became a partner in the Aurora law firm of Little, Perrine and Clausen. He has been active as a lawyer to the extent that his public duties permitted.

Since 1936 and until he took office as Chairman of the Illinois commission, Mr. Perrine has been president of a state bank, and since 1938 he has been a director of a local national bank.

In 1940 he became a member of the Republican State Central Committee, and served from that year until in 1950 as Treasurer of that body, by virtue of election after elec-

tion in which he won handily from his opponents. He voluntarily retired from the State Central Committee in 1952.

In civic affairs he has been continuously busy during his adult lifetime, an example being his services to the Aurora Public Health Association, of which he was president for eight years.

Because of physical handicaps he was not able to serve in the Armed Forces during war. He waived every every claim for exemption and did everything possible to enlist for limited duty, but was denied every request. He was willing, and sought opportunity to serve as a private.

Amongst the many admirable facets of the character of this man Perrine, there is his forthright manner; there is also his faculty of reducing problems to their simplest terms. For illustration, there is a talk he made late last year at the annual convention of the National Association of Railroad and Utility Commissioners on the matter of the service and rates of small telephone companies — a subject to which he has given much thought and attention.

"I think," said Commissioner Perrine, "that we are in such a position that we can frankly ask these small owners who are in service difficulties to sit down with us at the conference table, whether or not they have themselves requested rate increases, and discuss their situation . . . And the speedy action possible through this sort of negotiation would put to shame the long delays almost invariably encountered in our formal actions."

Such procedure would beyond question save time and money and be of value in many cases to the public served by, especially, many small telephone companies.

It is so simple and direct that one wonders why it has not been made effective long ago.

It is also, we think, a good example of the straight-from-the-shoulder methods of this man Perrine.

The advertisement at the right and on the two following pages are the first ads in the USITA natoinal advertising program. See NEWSLETTER story on page 13.

TELEPHONE QUIZ

Q: *How many Independent Telephone Companies are there in the United States?*

○ *52?*	○ *1,508?*
○ *563?*	○ *5,100?*

✓ *Check your answer.*

For the correct answer, turn page...

ANS: 5,100 Independent

A 1½ billion dollar industry

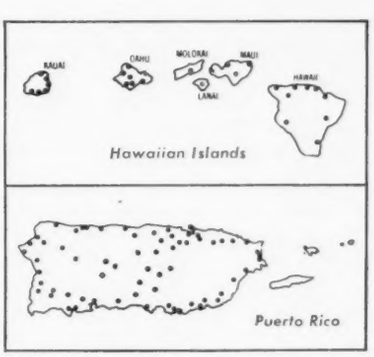
This is the amount Independent Telephone Companies have invested in the facilities for modern telephone service. Their present investment has more than doubled since 1943, and many millions are added each year. For Independents have their roots in the soil of this country's most rapidly developing areas.

In cities like Rochester, N.Y.; Lincoln, Neb.; Tampa, Fla.; and Long Beach, Cal.; America's 5,100 Independent Telephone Companies answer the call of our growing nation.

USITA

Telephone Companies

. . . provide service to nine million telephones through 11,000 exchanges indicated on map below. In addition, 15 Independent companies serve approximately 213,000 telephones in Hawaii, Alaska and Puerto Rico.



United States Independent Telephone Association

Munsey Building : Washington, D. C.

Joe's door is locked for the night . . .

But the orders come in as usual!

Joe Kikopolis still remembers the chuckles in the Gazette office when he walked in to advertise for help in his dry cleaning store.

"Less than fifteen dollars a *month,* Joe, for someone to answer your phone from 6 PM until midnight? Look, Joe, you're wasting your money. Nobody will answer this ad — nobody would work for that money!"

But Joe insisted, and someone did answer that ad. It was Joe's telephone company representative who stopped the chuckles. He read the ad and rented Joe a Peatrophone — to answer the phone and take orders all night long — for *less* than fifteen dollars a month!

Joe finds "Peatrophone" hard to say, so he calls his new partner "Pete" — and when he drives over to pay the telephone bill each month, he points proudly to the new sign on his truck: "Joe Kikopolis and 'Pete' - Dry Cleaning - All Night Order Service."

Many of your subscribers in small plants and stores would like to furnish all night order service — they just don't know how economical it can be. Tell them about Peatrophone — explain its low monthly rental charge — *and help yourself to new revenue!*

Write today for complete information and literature on Peatrophone — your new source of revenue.

Note: Selective harmonic ringing subsets now available — all frequencies.

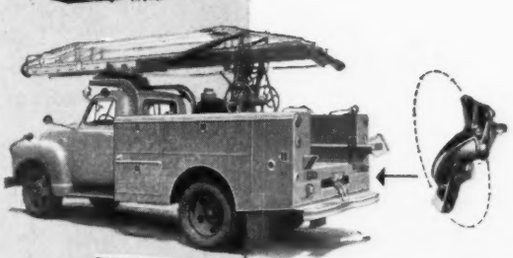
TELEPHONE ANSWERING & RECORDING CORP.
342 Madison Ave. New York 17, N. Y.

POWERS *American*

Series 450 CONSTRUCTION AND OVERHEAD MAINTENANCE BODY

Does the Work of
TWO TRUCKS

Ladder can be revolved 360° at elevations from 30° to 75°. In 23'6", 26'6", and 30'6" mechanical units, or 35' hydraulic model.



Body is 108" long, for installation on dual-rear wheel chassis having cab-to-axle dimension of approximately 60"

Here's a multi-purpose body that does work normally requiring two or more specially-equipped vehicles.

FOR OVERHEAD WORK . . . the body has a Powers-American mechanical or hydraulic Aerial Ladder, in a working height best suited to individual needs.

FOR SERVICE WORK . . . compartments provide space for the orderly storage of a wide assortment of tools and parts.

FOR CONSTRUCTION WORK . . . simplified, easy-to-use derrick handles poles up to 35 ft. in length. A 10,000 lb. underslung winch pays out cable beneath the body floor. A universal swivel sheave permits winch line pull in any direction, without limitation.

COMPLETE DESCRIPTION is given in Bulletin No. 118. A copy, with quotation, is yours for the asking.

Derrick utilizes flexible steel cable instead of conventional center leg. Stows in loading area rack when not in use.

POWERS-AMERICAN DIVISION
McCABE-POWERS AUTO BODY COMPANY
5900 No. Broadway • St. Louis 15, Missouri
428 Latham Sq. Bldg. • Oakland 12, Calif.

Thompson PRESENTS A SPECTACULAR ADVANCE

IN

RIGHT-OF-WAY BRUSH CLEARANCE

BROAD SPECTRUM BRUSH KILLERS

Fortified with patented H. S. 31 to deliver extra creep for extra kill.

Thompson Broad Spectrum 2,4-D—2,4,5-T brush killers set a new standard for ease of application, more effective killing action and more economical results in brush clearance. Now your crews need no special technical skills—they simply mix and spray. Hard woods—all species—brush or weedy growth—powerful broad spectrum Thompson brush killers of controlled volatility remove the hazard of "chancey" effectiveness. Foliage spray or basal bark application, you get more kill per gallon and more gallons for your dollars.

Thompson Chemicals

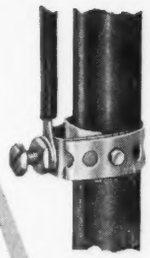
Latest technical data free. Write for station paper No. 12

Thompson **CHEMICALS CORPORATION**

3028 Locust Street, St. Louis 3, Mo.
3600 Monon Street, Los Angeles 27, Calif.

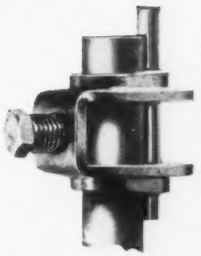
Order through
Buckeye Telephone & Supply Co.
Kellogg Switchboard & Supply Co.
Leich Sales Corp.
Or Direct

FIRST NAME IN BRUSH KILLERS



RELIABLE No. 1
STATION GROUND CLAMP

Field proved to maintain high pressure and maximum conductivity. Accommodates from ⅜" to 1¼" rod or pipe sizes.



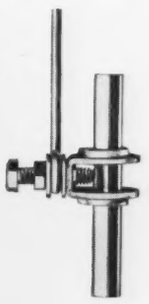
RELIABLE
GROUND ROD CLAMPS

Bronze Clamps — for copper and copperweld rods. Three sizes: for ⅜" to ½", ½" to ⅝" and ⅝" to ¾" rods.

Galvanized Steel Clamps — for steel rods and pipes. Three sizes: for ⅜" to ½", ½" to ⅝" and ⅝" to ¾" rods.

LET'S GIVE THESE "OLD STANDBYS" ANOTHER THINK, BOSS!

Maybe you too have been taking those *small* essentials too much for granted. Why not *be sure* that your ground connections are dependably worthy of the time and investment you put into your plants? Use test clips that bite right in for a positive contact every time. Yes, those small things can be mighty important — that's why I suggest you standardize on Reliable Specialties, they're designed and produced to the purpose.

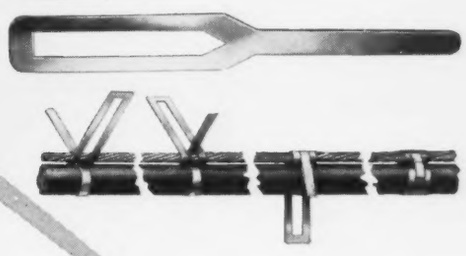


RELIABLE
GALVANIZED STEEL
KLING KLAMPS

— for steel rods and pipes. Two sizes: for ⅜" to ½" and ½" to ⅝" rods.

RELIABLE CABLE HANGERS

¾" to 4½" diameters — 7⅞" to 30" lengths.



RELIABLE TEST CLIPS

Firm spring grip

No. 1—Fitted with screw, nut, washer and spike

No. 2—Fitted with spike only

No. 3—Fitted with screw, nut and washer

No. 5—Alligator type

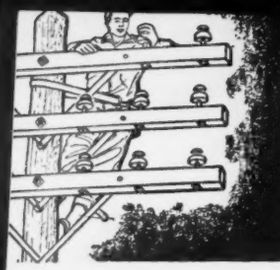
Let me send you samples and prices on these essential specialties — and remember the name tells you the quality — Reliable.

RELIABLE ELECTRIC COMPANY
3145 Carroll Avenue • Chicago 12, Illinois

Reliable

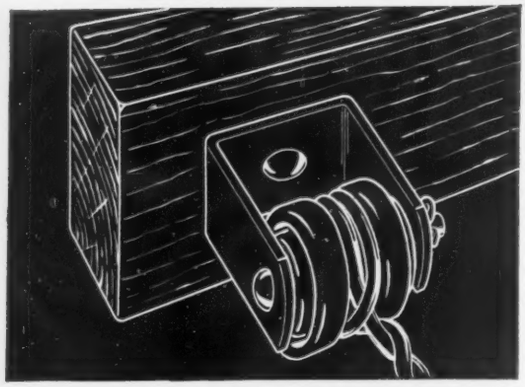
Telephone Protective and Terminal Equipment for all Station, Line and Central Office Needs.

OVER 45 YEARS' SERVICE TO THE UTILITIES



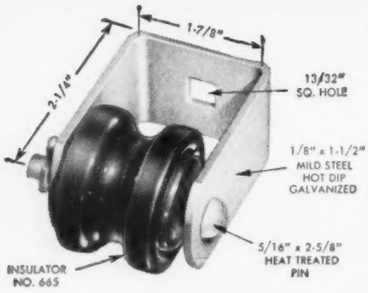
LINE CONSTRUCTION BLUEPRINTS

ITEMS SOME COMPANIES ARE USING TO MAKE LINE CONSTRUCTION WORK EASIER



L-M DEAD END CLEVIS

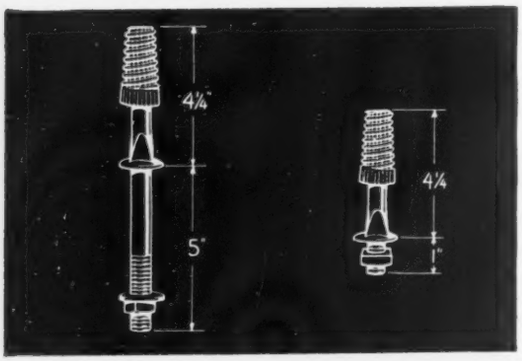
Cat. No. 260084A1



Here's a strong, compact, galvanized-steel clevis which provides a most practical method for dead-ending. May be attached to either pole or crossarm, with a ⅜"-diameter carriage bolt. Square hole keeps clevis from turning. Clevis has ultimate strength of 2500 pounds. Spool insulator (must be ordered separately) will take up to 1500 pounds wire tension.

L-M STEEL INSULATOR PINS WITH WOOD COBS

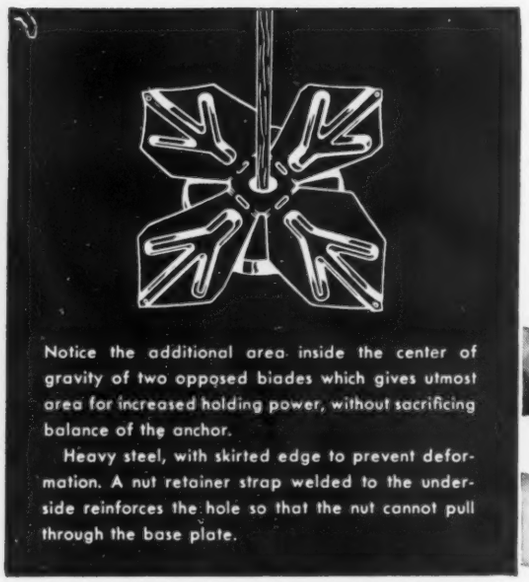
For wood crossarms: Cat. No. 9740, ½" diam.
Cat. No. 9741, ⅝" diam.
For steel crossarms: Cat. No. 9740S, ½" diam.
Cat. No. 9741S, ⅝" diam.



Strong steel pins, hot-dip galvanized, with seasoned oak cobs thoroughly impregnated with paraffin and threaded for 1" insulator holes. Pin for wood arm has square nut and clipped washer; pin for steel arm supplied with square nut only.

L-M 4-WAY PRESSED STEEL EXPANDING ANCHORS

DESIGNED FOR EXCEPTIONAL STRENGTH



Notice the additional area inside the center of gravity of two opposed blades which gives utmost area for increased holding power, without sacrificing balance of the anchor.

Heavy steel, with skirted edge to prevent deformation. A nut retainer strap welded to the underside reinforces the hole so that the nut cannot pull through the base plate.

Catalog Number	Diameter—Closed—Inches	Expanded Area—Square Inches	Nominal Holding Power Class—Pounds	Anchor Rod Diameter—Inches	Minimum Mechanical Strengths Without Noticeable Deformation—Pounds
200026B1	8	110	6,000	⅝, ¾	16,000
200026B2	8	125	8,000	⅞, ¾	21,000
200026B3	8	132	10,000	1	24,000
200026B4	8	132	10,000	⅞, ¾	24,000

All 3 sizes are REA-approved, and have been thoroughly tested and approved by major utility companies. You can depend on them to hold!

Two-piece design . . . The four blades are formed of a single piece of steel, and are held to the base plate by four small bolts, which simply shear off by tamping. The center hole is extruded downwards. This extrusion provides a bearing surface against the rod to prevent binding; it reinforces the tamping area; and it provides an audible signal when the extrusion strikes the base, indicating full expansion.

154-R

Do You Have a Line Construction Problem?

These are just a few of thousands of L-M line construction specialties. If you have a line construction problem, let us know. We may have standard or special items in stock that will solve it. Ask the North Electric or Kellogg representative, or the L-M Field Engineer. Or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

LINE MATERIAL
Line Construction Materials

Sold for L-M
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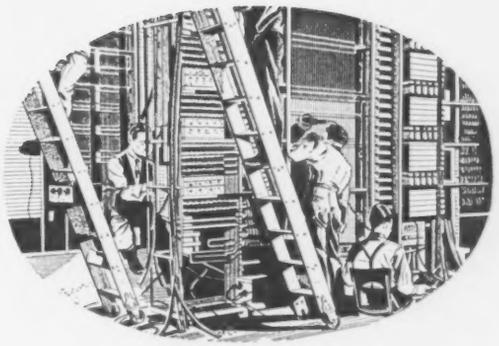
THE Telephone Engineer **EDITORIAL**

There Is No Substitute For The Telephone



THERE ARE certain characteristics of the business of supplying telephone service, as compared with other utility services, which the public should know about when it judges the performance of a telephone company.

For illustration: In certain Winter resort areas the electric light and power company asks its customers to not use its electrical current for space heating purposes. In some such areas, to be practical about it, the electric company carries a complete line of oil-burning space heaters for sale to its customers.

The company frankly admits that it does not have sufficient generating capacity to supply heat to the area. To supply such heat, the year-around population would have to carry millions of dollars of equipment and plant needed only a few times each year.

Again, in many areas of the country, householders would like to heat their homes with gas. But the gas company will not provide such service unless and until it knows that it has ample gas supply for the purpose.

In each of these cases there is a substitute, and usually more than one. There is even a substitute if the public water system is not available — you can drill your own well.

In each of these cases the utility company concerned has an "out," because there is some other way of accomplishing the end-result. But when the demand for local telephone service outruns for a time being the capacity of the telephone plant, the telephone company has no such "out." It and it alone must supply the service, because there is no substitute for the telephone!

This is a situation the public should take into account when judging the performance of a telephone company.

There is another important difference, which the public should also take into account, between the supplying of telephone service and the supplying of other utility services.

The customer who uses electrical service, or gas, or water, cannot make use of either of them until he has himself supplied, at his own expense, the necessary facilities and appliances that must be installed on his own premises and within his own house to make such use possible.

He must not only put his own money into this piping, wiring, plumbing and all the appliances and fixtures that go with them, but he must also maintain all of these things at his own expense, and replace them at his own expense when replacement is required.

Compared with this — and excepting a very small percentage of cases where the telephone is located an unusual distance from the exchange — the telephone company not only supplies and installs all the wiring and equipment necessary for supplying the telephone service, but it also maintains them at its own expenses, and replaces them when replacement is required.

This practice is essential to the business of supplying good telephone service, and the telephone company accepts the responsibility for seeing that the wiring and equipment on the subscriber's premises are suitable for working properly with the central office equipment and with other telephones, and with the long distance lines.

Therefore this practice is continued by the telephone company, notwithstanding the fact that the addition of a telephone to a telephone exchange now requires an investment in most cases twice, and in some cases three or more times the investment of a few years ago.

All of these things are well known, of course, to telephone company managements. They should be made known to the greatest extent possible, we think, to the public at large.

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TELE-VIEWS

HOMER J. Wright (above), formerly Tennessee General Manager, has been elected vice president and Kentucky general manager of Southern Continental Tel. Co. with headquarters at Elizabethtown, Ky. He succeeds EARLE B. BLOMEYER (below), who has moved to Columbus, Neb., to become president of the Nebraska Continental Telephone Co. Wilbur K. Shell, formerly district manager at Somerset, Ky., succeeds Mr. Wright as Tennessee General Manager. In addition to his Tennessee post, Mr. Wright served as a director of the Tennessee Telephone Association until 1952, and served as president of the Association for the year 1952-53. On Feb. 4th he was elected to the board of directors of the Kentucky Independent Telephone Association. He has also been appointed as a member of the USITA Small Company Regional Committee.

These are busy days for the Southern Continental Telephone Co., Inc., Cookeville, Tenn., as the company prepares for conversion of its McMinnville exchange to automatic service. Part of the activity is illustrated in the above paragraph which shows (l. to r.) MRS. MARTHA WRIGHT, stenographer; MRS. MARTHA HORNE, plant clerk; LENA MAE COULSON, plant Secretary; LEONARD PENNINGTON, cable helper; EUGENE RUSSELL, installer; T. CANTRELL, lineman; JAMES JONES, installer; and D. T. SHEARER, plant superintendent.

The Southern Continental Telephone Co. recently installed the 500th telephone in its Oneida, Tenn., exchange. This installation was made in the residence of MR. & MRS. M. J. ROBBINS, JR. Those shown in the picture (from l. to r.) are CARLOS GARRETT, district manager of the Crossville District, which includes the Oneida exchange, MRS. M. J. ROBBINS, JR., and F. L. TERRY, installer.

President B. H. PIEPMEIER of Community Telephone Co., of Black River Falls, Wisc., presents service pin awards to employes in the Walworth, Clinton and Darien, Wisc. group. From left to right are: MR. PIEPMEIER; WALTER MANNING of Walworth; MISS MINNA REIMER, chief operator of Clinton; MISS LILLIAN McCARTHEY, chief operator of Darien; and MISS BARBARA EVERHART, cashier of Clinton (standing).

From The Capitol—

WASHINGTON BUREAU REPORTS

By ROLAND DAVIES & FRED HENCK

BSDA to study question of government competition with private enterprise . . . REA adopts new engineering procedure . . . Action delayed on FCC filing fee plan.

AS THE RECURRING question of government competition with private enterprise has been brought to the fore again in Washington by introduction of a bill to set up an Anti-Government Competition Board, previously reported in this column, the Commerce Department's Business & Defense Services Administration is now taking a look at the subject.

The BDSA industry divisions reviewing the matter include the Communications Division, which already has received from industry officials, data pointing to government competition existing in two fields, including the Rural Electrification Administration's farm telephone program.

The material received by BDSA, which also covers the international telegraph industry, brings into focus the areas where the government is charged with having gradually encroached upon the responsibilities of private industry.

The request that BDSA examine the REA program came from the Michigan Independent Telephone Association, which submitted a case where, it says, REA practice has had a "detrimental effect upon a statewide program to finance small Independent telephone companies through commercial sources."

While the Michigan association's arguments are a reiteration of those advanced previously by critics of the REA program, the group's move was considered to be of particular significance because it is the first time BDSA — one of whose functions is to assist industry in dealings with all branches of the government — has been asked to take up the question of REA loan practices. It appeared likely that other commercial companies and associations would follow suit and cite additional instances of REA loans which they feel should not have been made.

The Michigan association directed much of its criticism against the 2% interest rate on loans charged by REA, with the result, it said, that available private capital withdraws because it cannot "compete with subsidized federal money." It also alleged that REA has taken the initiative in urging cooperatives and small companies to seek loans and, in considering them, has established financing standards not practiced by commercial companies or condoned by regulatory commissions.

BDSA was asked to seek a determination of government policy in the matter of REA loans. "Our concern rests not so much upon the single matter of an REA loan to (one) company but rather upon the question of principles of government policy," the association said.

"Telephony in Michigan and elsewhere has given ample proof of its ability to solve its own problems, provide its own capital, and to meet its obligations as a public utility, all within the limits prescribed by state and federal statutes. If the telephone industry must compete with subsidized federal funds . . . then it would seem the industry is, in fact, doomed to state ownership, since the small companies will have no alternative in financing."

After the Eisenhower administration took office, there were recurring reports that the federal government would increase the interest rate to bring it more into line with the government's cost of obtaining the funds to lend. The reports have been scotched, however, by REA Administrator Ancher Nelsen and other officials, who have declared that overall, the government has not lost money on the REA loans.

REA Adopts New Engineering Procedure

REA, IN ITS administration of the loan program, has developed a

pre-loan engineering procedure which it believes will save its borrowers time and money. In essence, the new program combines into a single step the previously two engineering steps required of borrowers by the agency.

In the past, a pre-loan engineering report was made to REA, as the basis for a preliminary design of the system, with cost factors to permit judgment of the construction expenses. After the loan allocation was made, engineers would carry out a detailed area coverage design.

Under the new system, a full area coverage design study will be made by consulting engineers in advance of REA approval of the loan. This combined study, it is believed, will speed up the endorsement of the loans and the advancing of money to the borrowers.

The new plan lays additional stress on the services of consulting engineers, although REA already has pretty well departed from the earlier practice of having its own engineers make pre-loan surveys, when consulting engineers familiar with the field were not available. REA engineers now make the surveys only in rare exceptional cases, an agency source said. The recommended contract for engineering services was adopted after discussions with consulting engineers from all parts of the country, held by REA in February.

Hearings on Wire-Tapping Proceed Quietly

ALTHOUGH IT has been pretty well overshadowed by the Army-Senator McCarthy "circus" hearings on Capitol Hill, a hearing of much greater long-term significance has been going on rather quietly before a Senate Judiciary subcommittee.

It involves the admission into court proceedings on national security violations of evidence obtained by wire-tapping. Despite its apparent relation only to intelligence agencies, courts, and private detectives, the matter actually is of some importance to telephone companies.

It is feared that without some specific authority for communications companies to permit interception and divulgence of communications, now prohibited under the Communications Act, the companies themselves might be held liable if they followed the instructions of, for example, the Federal Bureau of Investigation or the military intelligence agencies. In addition, the traditional privacy of communications should be maintained.

Fortunately, the principle that the communications companies should be protected was spelled out pretty well in the House-passed legislation, which permits use of wire-tap evidence in espionage, sabotage, and similar cases if prior approval for the tap is obtained from a federal court. This is somewhat opposed to the administration viewpoint that the Attorney General should be the one to authorize the wire-tapping.

In hearings before the Senate committee — on a substantially different bill, which would prohibit wire-tapping except under certain specified circumstances — Federal Communications Commission Chairman Rosel H. Hyde appeared to point up the FCC's position that Congress must determine the permissibility of wire-tapping, and the conditions under which it is authorized. He urged, however, that wire-tapping amendments authorizing common carriers to permit such action be made a part of the criminal code, rather than the Communications Act.

"We also believe," Chairman Hyde declared, "that it is essential that any legislation adopted spell out clearly the circumstances and procedures under which interception may be permitted, so that both the users of communications facilities and the carriers performing this invaluable service will know in advance their rights and responsibilities."

Although the situation is pretty well up in the air, it appears to committee sources that the group will report out some kind of wire-tapping bill before the end of the current session of Congress.

FCC Filing Fee Plan Not Yet in Action

SPEAKING OF the FCC, incidentally, Commission sources have pointed out a few instances in which companies filing documents, apparently under the mistaken idea that the proposed filing fee system is in effect, have enclosed checks or money orders with the documents.

These have included at least one Independent telephone company. To be completely clear about it — the Commission filing fee plan is not in effect at all. The program outlined a few months ago is in the form of a proposal on which final action has not been taken.

From all appearances, it will be some time before there is any final action on the subject, as the FCC has suspended the proceeding in response to a resolution of the Senate Interstate & Foreign Commerce Committee. The committee takes the stand that the matter is one of Congressional policy, and that no moves should be made until Congress decides the matter.

With the exception of some long-standing charges for such items as special ship radio inspections, there are now no fees whatsoever charged by the Commission, and certainly not for anything that a telephone company would be likely to file.

Coming Conventions

Kansas-Missouri Telephone Association, Muehlebach Hotel, Kansas City, Mo., May 17, 18, 19.

Pennsylvania Independent Telephone Association, Bedford Springs Hotel, Bedford, May 25, 26.

New York State Telephone Association, Scaroon Manor, Schroon Lake, June 7, 8, 9.

California Independent Telephone Association, Fairmont Hotel, San Francisco, June 10, 11.

Indiana Telephone Association, Claypool Hotel, Indianapolis, June 17, 18.

Washington-Oregon Telephone Association, Multnomah Hotel, Portland, June 18, 19.

New Hampshire-Vermont Telephone Association, Farragut Hotel, Rye Beach, New Hampshire, June 23, 24.

Michigan Independent Telephone Association, Hotel Pantlind, Grand Rapids, Sept. 9, 10.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept. 16, 17.

Tennessee Telephone Association, Hermitage Hotel, Nashville, Sept. 16-17.

Arkansas Telephone Association, Majestic Hotel, Hot Springs, Sept. 20, 21.

United States Independent Telephone Association (National Convention), Conrad Hilton Hotel, Chicago, Oct. 11, 12, 13.

North Carolina Telephone Association, Carolina Hotel, Pinehurst, Oct. 18, 19.

South Carolina Telephone Association, Myrtle Beach, S. C., (Hotel to be named later), Oct. 25, 26.

Virginia-West Virginia Telephone Association, Roanoke Hotel, Roanoke Oct. 28, 29.

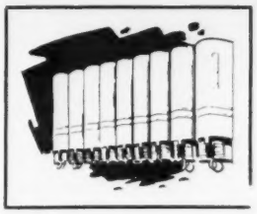
Oklahoma Telephone Association, Huckins Hotel, Oklahoma City, Nov. 4, 5.

Alabama-Mississippi Telephone Association, Thomas Jefferson Hotel, Birmingham, Ala., Nov. 8, 9.

South Dakota Telephone Association, Sioux Falls, Nov. 11, 12.

Georgia Telephone Association, Bon Air Hotel, Augusta, Nov. 12, 13.

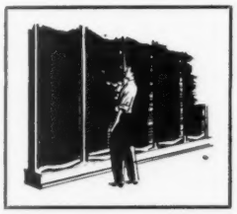
Florida Telephone Association, Soreno Hotel, St. Petersburg, Nov. 15, 16.



Independent Participation In

THE PLAN FOR NATIONWIDE Customer Toll Dialing

By L. L. Ruggles



Nationwide Toll Dialing is a cooperative project in which the Independent telephone industry has a lively interest.

AS OUR SUBJECT implies, Nationwide Customer Toll Dialing is a cooperative project in which the Independents have a lively interest. The complete job cannot be done by one segment of the industry alone. The Independent telephone companies may expect to have ample opportunity to contribute their share of the traffic, and, with the aid of the Independent manufacturers, to contribute constructive ideas on the execution of the plan. As a vital part of *one* of the world's greatest industries, the entire Independent group must be alert not only to the opportunities offered but also to the responsibilities which those opportunities impose.

I shall attempt briefly to sketch some of the broad plans of the Independent manufacturers who will supply your equipment for meeting the required conditions and standards of performance so essential to high-grade toll service for all telephone users.

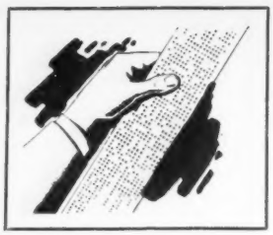
As early as 1910, operator toll dialing was practiced in a small way in certain sections of the United States. The circuit lengths involved were then generally much shorter than those over which we can dial today; nevertheless, these beginnings in operator toll dialing led to a number of basic developments in toll dialing techniques which have since been improved until today we are able to dial from one end of the country to the other with accuracy and speed. These early ventures in toll dialing, like local automatic switching, were projects of Independent origin.

As automatic telephone systems became more numerous, more and more cities were connected by dial toll lines, and during the past 25 or more years, operator toll dialing networks have become common. Nationwide toll dialing is, of course, a more recent development, and has required the devising of new methods, the perfection of new equipment, and a greater need for cooperative effort among companies in both segments of the industry.

Your suppliers of equipment are aware of the needs and are actively developing equipment and apparatus to serve the best interests of the industry as a whole. I will try to outline in a general way some of the plans and accomplishments of the Independent manufacturers who will supply your equipment for operator and customer nationwide toll dialing. Operator toll dialing has been established in many places in your systems and the practices are fairly well understood by most operating companies. Nationwide *customer toll dialing* is, of course, quite new but is making rapid progress and there *will* be many of you who will be considering the possibility of introducing this plan in your own territories.

Introduction of Customer Toll Dialing

CUSTOMER toll dialing with automatic toll ticketing was introduced commercially in Europe in 1936 (Ostend, Belgium). The first patent disclosing such a system and equipment for its operation was issued by the U. S. patent office in 1928 to Mr. J. E. Ostline of Chicago. The first commercial installation of automatic toll ticketing in the United States was placed in service in 1944, in a Bell System exchange in Cali-



Customer Toll Dialing

(Continued)

fornia. This provided for one and two-party line service. About the same time a pilot installation of another type of system was made in an Independent exchange in California for experimental purposes.

Independent companies have since that time introduced Customer Toll Dialing in several sections of the United States and are having satisfactory results, not only with the equipment, but with the machine accounting of their own choice. These first installations by Independents provided for automatic station identification of from one to four parties on a line. As you also know, the Bell System has made other installations which are reported to be very satisfactory, for one and two-party lines.

Automatic Toll Ticketing

AUTOMATIC Toll Ticketing as originally conceived and practiced, was essentially designed for AB or short-haul toll dialing. The high volume of traffic resulting from community interest among nearby towns offered an opportunity for mechanical equipment to reduce the operating and accounting labor incident to this relatively low revenue business. Most of the systems so far installed have been confined to this form of toll business. In the main, therefore, most manufacturers have *produced* equipment for *short-haul* traffic while *developing* the *wider range variety of system.* If you will allow me a little license in reporting, I shall try to outline the broad features of systems now being offered by your Independent manufacturers, and give you a brief history of the progress made since the first system was conceived.

The original patent granted on such a system disclosed means and methods whereby subscribers could complete toll connections by dialing. A toll call could be originated by dialing a code to select a trunk to the distant town. It also provided for identification of the calling subscriber by requiring that he dial his own number *before* dialing the number of the distant station. The dial pulses were registered on a paper tape by a pen register and the time of day and date were stamped on the tape automatically. The elapsed time of the call was recorded by marks on the tape indicating one minute intervals. In order to compute the billing, it was necessary to read the tape by counting the marks indicating the numbers dialed and the number of minutes during which the circuit was used. A verification train checked the calling number and in case an error in dialing occurred, an operator would be alerted to advise the caller to repeat his call.

This early conception was followed by many new ideas which were promptly translated to working equipment. One major improvement resulted in apparatus for automatically detecting and recording the calling number. This was printed on a tape along with the called number and other pertinent information but the timing of the call was indicated by holes punched in the tape to indicate one minute intervals. This eliminated a little more labor but the tape still had to be read and manually processed before a ticket could be prepared, while the amount of tape needed for each call might be measured in several feet, depending on the duration of the call.

In 1945, a European manufacturer completed the installation of a system for Mons, Belgium, which printed a complete toll ticket including the computed total charge for the call. This feature reduced the labor involved in toll billing as well as in the switching of the calls. The European systems mentioned dealt only with individual lines. Later U. S. developments have included the use of business machines which will process punched cards made by the ticketing equipment and print complete bills, thus eliminating the manual sorting of individual toll tickets and making the whole process mechanical.

Within the past few years several Independent manufacturers have developed systems for automatic ticketing and I shall try to give you some of the highlights of these systems. The manufacturers who offer toll ticketing systems have been good enough to supply me with literature covering their several developments, and while this is my own interpretation, I hope it is both accurate and impartial.

In analyzing the various types of automatic toll ticketing systems being offered by Independent manufacturers, I have found it convenient to classify them with respect to the kind of procedure which the calling subscriber is required to follow. By this process I have arrived at five general classifications.

Methods of Operation

TO ILLUSTRATE the five methods of operation, we shall take a very simple case of an automatic telephone exchange arranged for automatic toll ticketing of calls to a single toll point. All of the systems are, of course, arranged to select more than one toll point but it will facilitate our explanation if we take the simple case. You will understand that the systems described hereafter are not the product of any one manufacturer, but are so classified because of methods of operation as they relate to the subscriber's effort in dialing his own toll calls.

Number One. The simplest form of toll ticketing system, as far as equipment is concerned, is the type which provides for the subscriber to record his own number in the apparatus by dialing the number. The subscriber's instructions as to sequence of operation would be something like this:

(a) Dial the code assigned to select the trunk to the distant point,
(b) Dial your own telephone number,
(c) Dial the distant subscriber's number.

Most systems within this category provide a means for verification of the calling number as it is dialed by the calling subscriber. In general, only the line number is verified but some systems provide for checking station numbers on party lines as

well. This is accomplished by special dials on the telephones, the cost of which may not be justified in this type of system.

Number Two. In the second general category will be found systems which include automatic detection of the calling line number. The line number, automatically detected, is recorded automatically on the machine. A party line subscriber is required to dial a distinctive single digit to register his station number on the line. Instructions to the subscriber may then follow this sort of pattern:

(a) Dial the code to select the toll trunk,
(b) Dial the last digit of your own number to register your station on the line,
(c) Dial the distant subscriber's number.

Standard dials are used by all calling subscribers.

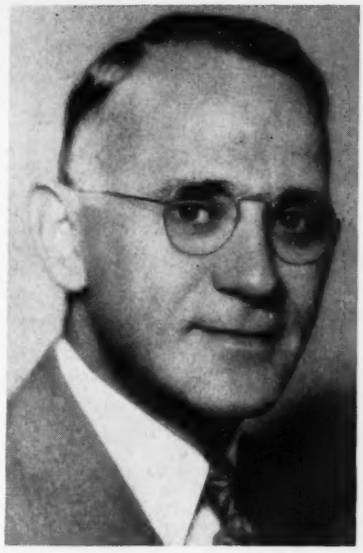
Number Three. Systems in the third category are similar to those in the second except that automatic detection of both calling line number and station number on party lines is provided. The following instructions would apply to subscribers in this third category.

(a) Dial the trunk code
(b) Dial the called subscriber's number

Calling stations on party lines requires the use of special dials for automatic registration of calling station number.

Number Four. Systems in the fourth category require the dialing of the trunk or access code and the terminating number as in the third group. However, instead of automatic detection and recording of the calling number, the recording equipment is arranged to introduce an operator into the connection. The operator asks for the calling party's number and registers that number by means of a keyset on her position.

This general method of operation varies slightly with different manufacturers. In one system, the operator is introduced after the subscriber has dialed the trunk code and before he proceeds with dialing the terminating number. The operator instructs the subscriber to proceed with dialing after she has recorded the calling number. Another system uses a register into which the calling subscriber dials the terminating number after which the operator enters the connection, registers the calling number and starts a machine sender which completes the call. Standard subscriber dials are used.



L. L. RUGGLES, of the Automatic Electric Co., Chicago, presented this paper on "Toll Dialing" at the 1954 convention of the Texas Telephone Assoc.

Number Five. Systems in the fifth category are used in automatic exchanges which employ common control equipment for local as well as toll calls. In systems of this type the subscriber will be required to dial only the subscriber's number in the distant exchange. The common control equipment, consisting of registers and automatic senders, will route the call as required and the ticketing equipment will automatically detect the calling number and record it in the machines. Special dials are used by subscribers on party lines.

The recording and tabulating devices used to produce complete toll tickets or to print subscribers' bills cannot be treated fully here. In fact, any one of the five classes of systems I have described deserves much more complete treatment than has been given. The following brief notes, however, may give you some idea of the various techniques used in their design and production.

The simplest system uses a toll recording trunk which perforates a tape to record the impulses of each digit dialed by the subscriber as he dials the code for the town being called, then his own number, and finally the called number. The timing of the call is indicated by holes punched in the tape, one for each minute interval. An electronic tape reader collects the recorded information from the perforated tape, and may control a ticket printer for producing a printed ticket, or may actuate a card punch to produce a punched card for use in business machine processing. In such a case a complete subscriber's bill might be produced by machine methods.

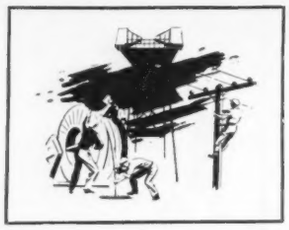
Another system records the dialed impulses on a magnetic tape in the trunk recorder. Sufficient tape is provided in each recorder to store approximately 100 average calls. When the capacity of the tape has been reached, or at predetermined intervals, the tape is read off by electronic equipment which records the tape information and at the same time clears the tape for another group of calls. The tape reader may control a ticket printer or a card punch as described above.

A third system collects the pertinent data on trunk recorders, called "ticketers," consisting of switches and relays which store all of the information required until completion of the call. Only after a call has been completed will a tape be punched to record all of the information pertaining to that call. About 3″ to 4″ of tape are required to record the complete information for each call since this system uses teletype code perforations. From the tape thus prepared may be produced a ticket or a punched card. The punched card is then processed for machine billing.

For the sake of simplicity, the descriptions I have briefly outlined cover only short-haul toll dialing. This does *not* imply that nationwide dialing cannot be accommodated on the systems mentioned. In fact, equipment has been designed by Independent manufacturers which will permit short-haul dialing and automatic ticketing initially, with provision for extra apparatus which may be required for expanding the service to nationwide customer dialing.

Problems of Nationwide Customer Toll Dialing

IT IS TRUE, however, that the problems of nationwide customer toll dialing are somewhat more complicated than those involved in customer dialing of short-haul toll calls and, as a result, there are new requirements for features which may or



Customer Toll Dialing

(Continued From Page 41)

may not exist in the systems I have outlined. Not having full knowledge of all systems, I shall confine the following remarks to a few of the considerations which must be given to systems capable of processing nationwide customer dialed toll calls.

It is probable that most automatic exchanges installed for local service by Independents will employ switching apparatus controlled directly by a subscriber's dial as contrasted to systems which include some form of common control system using a register-translator-sender arrangement. There are, of course, a great many exchanges of the direct control type now in service, and these probably will be candidates for some form of toll ticketing, as will new exchanges of this type.

Several Independent telephone companies are now using common control equipment in step-by-step exchanges, but these may be considered in the minority since they are installed in metropolitan areas where a universal directory is used, and where subscribers in a large number of connecting exchanges are reached by dialing only directory numbers without prefix or access code. Such systems, of course, will have advantages in the nationwide plan of customer toll dialing because of the inherent facilities for registering toll and local codes on registers which, with the aid of translators and machine senders, will direct the calls to their proper destinations. Such equipment will, of course, provide for routing calls to terminating points either over preferred trunk routes or via alternate routes which may be provided. No access code is required in such systems.

Since this type of equipment cannot be justified in most Independent exchanges, let us examine other means for accomplishing the switching functions in a manner compatible with the over-all nationwide plan.

One of the requirements set forth for nationwide customer dialing is that all subscribers' local numbers consist of two letters and five numerals. In addition to the local 2-5 number, three digit toll area codes have been assigned to some 90 numbering plan areas for the purpose of selectively routing calls to the particular area within which the terminating office is located.

Where the local central office switching equipment will allow the dial to directly control the switching functions (such as conventional step-by-step or relay systems) a toll call dialed by a customer will require the following minimum effort.

(1) Dial an access code which will switch the caller to automatic ticketing equipment. This code is equivalent to calling a long distance operator for which various codes are now in use — such as "0," "110," "211," etc. The access code may be 2 or 3 digits to suit local conditions or the type of equipment in use. A three-digit code will be used in most cases.

(2) If the called station and the calling station are located within the same toll area, it should be possible to complete the call by dialing only the 7-digit number after the access code has been dialed. This possibility exists, of course, where the ticketing equipment will automatically detect and record the calling line and station number. This call within the home toll area would, therefore, require the customer to dial a total of 10 digits of which 3 are an access code, and 7 the subscriber's number.

The procedure just outlined used the term "minimum effort" required by the customer for home area dialing. Besides the requirement for automatic detection of calling line and station number, this assumes that the toll switch train in the local office, as well as in the terminating offices, will accept direct dial pulses and will route the call over switching paths which may be selected by the 7-digit number. This procedure will be possible in many cases, but if a connecting office employs common control equipment, all 7 digits of the subscriber's number must be sent to that office after the proper trunk group has been selected.

When the called station is in another toll area, 13 digits total would be required — 3 digit access code, 3 digit toll area code, 7 digit subscriber's number — total 13.

Systems which do not provide for automatic detection and recording of the calling subscriber's number could require the subscriber to dial as many as twenty digits to complete calls to foreign toll areas.

These cases are cited simply to indicate the range of possibilities which exist with various types of systems.

In the CAMA plan as outlined by the Bell System, or its counterpart among Independent companies, the subscriber will dial a transfer or access code to reach the ticketing equipment after which he will dial either 7 or 10 digits which would again require a maximum of 13 digits. After the subscriber completes his dialing, an operator will be connected to the circuit to request the calling party's number. The operator will key into the recording equipment the calling number and start the sender which then guides the call to its destination. The automatic ticketing equipment will be required to record the toll area code where it applies in addition to the local number, and will record the proper rate for such a call so that a complete ticket including total charge can be produced.

An Independent exchange equipped for automatic toll ticketing may, of course, complete calls over its own network of trunks with conventional direct control switching equipment, but for foreign area calls, such as will be involved in nationwide dailing, some form of register sender equipment will serve the purpose.

Calls from one toll area to another toll area will, as a rule, be routed through a control switching point where facilities are available for

routing calls either by direct trunks or alternate routes to any dial point connected for this service in the U. S. and parts of Canada.

These control switching points employ common control equipment, that is, register senders which will register the dialed number and translate where required, then retransmit the proper digits for routing the call to its destination.

For such foreign area calls from the Independent exchange, the register sender equipment associated with the toll ticketing equipment, will be required to register a ten-digit number as dialed by the subscriber. From the area code which has been dialed, the register equipment with its associated translator will cause the switching equipment to select a trunk to the control switching point, and then retransmit the original ten digits as registered by the subscriber. The equipment at the control switching point will then control the call to its destination.

One interesting phase of this requirement exists in the following example:—

An Independent toll center equipped for toll ticketing may be connected to a control switching point which is, of course, in the same toll area, but in addition may also have direct trunks to a town close by but in another toll area. Calls to the foreign area town must always be originated by dialing the area code plus the 7-digit number.

The equipment at the originating toll center would normally route the call through the control switching point in its own toll area, but since direct trunks are available to the foreign area toll point, it is more economical to switch the call over the latter route.

Therefore, the common control equipment in the originating exchange must be capable of translating the area code, plus the local code, into a routing code which will direct the call over the most economical path.

In the Bell System this process is known as "Six-digit Translation." One Independent manufacturer has termed this "Dual Code Translation;" that is, the common control equipment which records the three digits of the area code, plus the three-digit office code, is capable of disregarding the routing through the normal control switching point and will route the call via direct trunks to the nearby town in a foreign toll area.

If the direct trunk group is completely occupied at the time the call is registered, the control equipment will disregard the direct route and will then select a trunk via the control switching point, which in this case, would be an alternate route. The sender will then be required to transmit to the control switching point the complete ten digits as dialed by the caller since the call is outside the home toll area. Equipment to perform these functions can be supplied by Independent manufacturers.

I have described the main features of the several types of systems that will make it possible for you to expand your operations to provide this new service to your subscribers. Such provision will unquestionably result in further growth in toll traffic and revenues for the Independent operating companies.

The type of system you will choose will depend upon many factors and a careful study of all features offered is essential if you are to achieve the maximum returns from this venture.

Your manufacturers will, of course, be happy to discuss your needs and make recommendations in accordance with your best interests.

The nationwide toll dialing plan is based on the principle of centralizing toll switching within a given area as determined by a careful analysis of local area as well as nationwide traffic patterns. Obviously this efficient arrangement will reduce the amount of toll switching equipment to a minimum and will result in maximum utilization of facilities.

It is probable that a majority of Independent companies will achieve most satisfactory results by owning their own toll ticketing equipment; however, there may be areas in which two or more Independent companies could profitably cooperate in financing and operating a single centralized toll ticketing and switching equipment to jointly serve the various offices of these companies.

In other cases it may be possible for a large Independent Company to install toll ticketing equipment and billing facilities to serve several smaller nearby Independents who cannot readily justify the investment in individually owned ticketing equipment.

All of these and other possibilities will surely receive serious consideration by the Independent industry whose traditional objective is the *best in modern telephone service for its subscribers.*—THE END.

"Foremen Only" By Fred D. Carl

LEADERSHIP is an essential factor in the makeup of every good foreman. The qualities for leadership can be developed to a considerable extent. The very fact that a man has been promoted to the position of foreman, is proof that he possesses more than an average number of the qualities required.

The ability to handle men is even more important for a foreman than knowledge of his work. He must know how "to rub people the right way." Popularity alone will not make a man a leader. It must be combined with respect. Leadership is based on a proper balance between knowledge and ability to get along with others.

Any foreman who will make a careful analysis of his own personality and consciously try to build up those traits in which he is weak, and make the greatest use of those in which he is strong, can improve himself as a leader.

Supervision means overseeing the work of others to make sure that it is done correctly. Supervision involves planning, instruction, and inspection. Two general plans of supervision are "discovery and correction" and "anticipation and prevention." The latter method is obviously the preferable one. This method requires advance planning.

Supervision is applied to details rather than to generalities. Attention should be focused on those significant details which are indicators of condition.—FOREMAN TRAINING

TO BE A SUCCESS an operator must feel that her efforts are important, for when she feels she is needed she it more likely to cooperate fully in all phases of her work life.

Blueprint For A Traffic Force

By Ruth E. Richards

"GIRLS — WANT A JOB YOU CAN COUNT ON?"

The telephone company offers you a steady job on the operating force. Telephone operating is more than a job, it is an education as well. Gain practical knowledge through contacts with anyone, anywhere!

If you are between 18 and 30 years of age, with a high school education, come in and talk to Miss Blank the Chief Operator who will give you further details.

Apply at ..... etc.

BEFORE YOU counter with "Well, I just don't believe in advertising etc," let's take a look at the "either-or" situation.

Either you need applicants for operating work, *or* you don't.

If you don't, you will *either* be interested in this article with a thought for future needs, *or* you won't.

If you are in need of help, *either* you believe in the value of advertising for help *or* you don't. If you don't, perhaps you'll like a few of our other ideas.

"Blueprint for A Traffic Force" may seem like a trite title, but if it expresses to you the idea of a plan—an organized assembling of the necessary process for creating a working unit of operating people—then the word "blueprint" is justified.

Our "set of plans" calls for "a means of securing applicants — recruiting"; "a satisfactory method of interviewing the applicant"; "proper induction of the accepted applicant"; "training of the new employe."

These processes will be covered in this and related articles.

Recruiting

VARIOUS METHODS of recruiting new operators are recommended and practiced by telephone companies, with different degrees of success according to the condition of the labor market in the community at the particular time that help is sought.

We suggest the following as producing the most satisfactory results:

(1) Through present employe sources, this either through personal contact, that is, by asking your operators to notify job-seeking friends that work is available, or by way of

bulletin board announcements. New employes obtained by this method generally prove to be stable and satisfied, since their original impression of the job was formed by a satisfied employe. (Only satisfied employes try to sell their friends).

(2) Through high school sources: the first step in recruiting by this method is to invite high school principals, student counselors and teachers to visit your exchange. Among the methods used to attract students themselves, are short talks in the schools, given by telephone employes. Many high schools sponsor "Career Day" programs during the weeks before graduation. These programs, designed to acquaint the graduating classes with business and job oportunities, offer an excellent means for "selling" telephony as a career. High school paper ads, or school sports program ads reach prospective employes at a desirable age level. These ads are especially good sources for part time employes. An invitation to the school newspaper reporter to write a feature article about the local telephone exchange, to be coordinated with paid advertising in the paper, provides excellent returns for the money spent for it also furthers public relations as it appeals to recruits.

You keep your company name before high school students by interesting them in part time work; feature the idea that when they graduate they will be already trained and experienced in a valuable career.

(3) Placard ads displayed in your telephone business office offer a continuing suggestion to telephone subscribers that telephone operating is an interesting and desirable job.

(4) Local newspaper advertising.

Reluctance to the use of newspaper advertising centers around the need for greater screening of applicants — some of whom will not meet your requirements.

In composing your advertising notice, keep in mind the fact that you are offering employment as well as seeking help, and that you will attract a better type of prospective employee if your ad sounds somewhat selective.

The Applicant

WHEN A PROSPECTIVE employe applies for work she gains a lasting impression of the Company, the office and the supervising personnel. Whether she remains as an employe (if hired) will depend to a great degree upon the initial interview. *Force turnover control* starts with the interview, the manner in which it is conducted, where it is held and the way in which applicants are received.

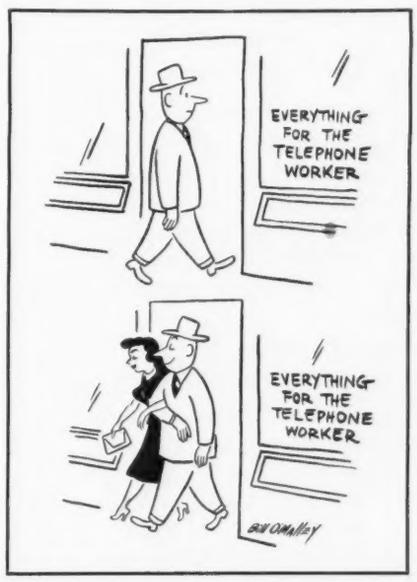
It should be unnecessary to say that an applicant should be greeted in a friendly and unhurried manner and made to feel at ease as she is interviewed. I have known chief operators who defeated their own purpose through failure to devote the necessary time to handling an interview, and while I recognize how pressure of work waiting to be done might influence them, in the long run proper interviewing pays dividends.

In applying for a job, the applicant presumably considered telephone work as desirable. If her impressions are favorable from the beginning, she is well on her way to becoming a good employe. The reverse is also true, for she will be quick to sense any shortcomings in her treatment during the employment process.

The Interview

PROBABLY THE most important part of the employment and selection process is the interview. The impressions of the interviewer coupled with the information on the employment form determine the applicant's fitness for the job. The purpose of an interview is actually a three-in-one purpose:

(1) To give the applicant information about the job.



(2) To find out whether the applicant is qualified.

(3) To make a friend for the Company — whether the applicant accepts or not.

An atmosphere of semi-privacy is desirable, with the applicant seated so that she will be comfortable.

To be effective, an interview should be a two-way affair; encourage the applicant to ask questions about the job.

The interviewer should discuss the work and allow her to tell why she is interested. Many applicants have never seen a switchboard. If the interview is held in the operating room, a brief explanation of the equipment will put the applicant at ease and in a mood to talk.

A Challenging Question?

"WHY DO YOU think you'd like to work for the telephone company?" Such a question as this, spoken pleasantly, with a smile, and with a questioning inflection, will more often than not, give you a definite clue to the probable acceptability of the applicant.

Her answer tells the story. If the answer is a hesitant — "Well, I need a job," or "I saw your ad" it means that more detailed questioning will be required to be sure the applicant will fill your needs.

"Do you know anything about a telephone operator's job?", will bring a variety of answers. An answer such as, "I know Sadie Jones who works here, 'n she likes it, so I think I would," or "my mother used to be an operator before she was married, and she liked the work and has told me about it, so prob'ly I would," is more likely to come from a girl who has given some thought to the prospect of working.

After she has a general idea of the work she may be asked to fill out an application form, which should be explained as necessary. When it is completed ask questions about the entries in order to become better acquainted with the applicant — discuss the subjects she enjoyed most in school (this will provide clues to future plans, further schooling, marriage, career in another field, — science majors often plan to enter nurse's training) and the work she performed at other places of employment.

Determine why she left previous

employment, since it will give you an idea as to whether she is apt to be unstable as an employe, or whether she is one who becomes dissatisfied with every job she holds. The answer to "how did you *feel* about that job?" will be more revealing than one to such a question as "how did you *like* that job?"

The interviewer endeavors to present a favorable, but realistic, picture of the conditions of employment:

(1) She will stress the attractive features of the job, — good pay, the satisfaction of doing work vital to the community, considerate supervision, congenial associates, etc. She should be careful not to paint too rosy a picture, lest the future employe feel disappointed later. There should be a realistic explanation of hours, wages and the necessity for good attendance and punctuality, and also that the telephone business is a public service which requires that operators be on duty all hours of the day and night. Explain about the hours fully and call attention to the fact split tricks and evening hours are compensated with other advantages such as time for shopping, participation in outdoor sports, etc. Stress the point that operators have full weekdays off due to working Sundays to do things that can only be done during the week, while being paid extra for the Sunday work, if this applies.

If the applicant is tentatively acceptable, it is desirable that she be shown through the office. If she would like to do so give her a headset and allow her to listen briefly to an operator so that she will see at first hand how the work is performed. If she is not employed the explanation of the operation of a switchboard is not wasted, for a telephone user is better informed.

If a position is offered to the applicant and she accepts, she should then be advised:

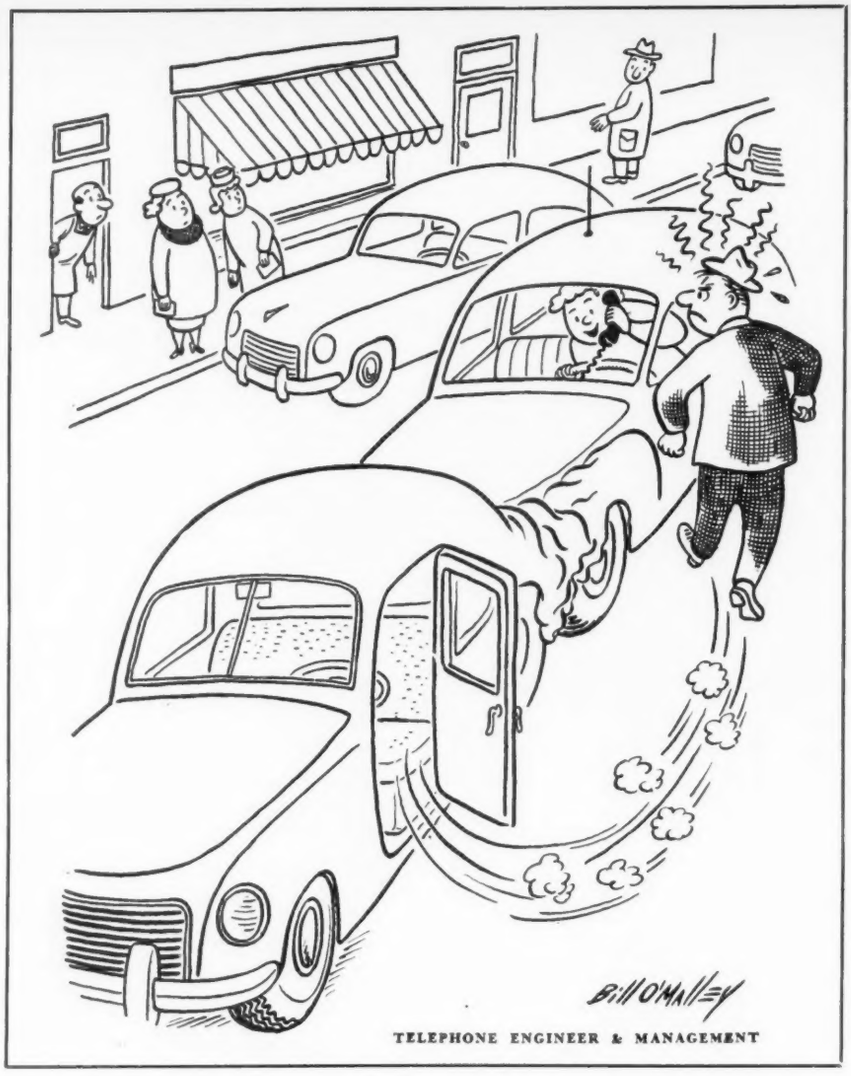
(1) Where, when and to whom to report.

(2) That she will be given a training course to prepare her for her work, and the length of time it will last. If possible, introduce her to the supervisor who will instruct her.

(3) Explain the hours she will work during her training. Also about the lunch and relief periods.

In closing the interview the person who employs the applicant should express pleasure that she has qualified for employment and in a simple and sincere manner extend good wishes for her success as an employe.

If an applicant is not a good prospect, be especially careful as to what is said and how it is said when telling the applicant that she is not acceptable. The skill of the interviewer shows up when an applicant recognizes that she is not suited to the job and literally "turns herself down." Remember her good will as a telephone user is very important even though she is not employed.



"I'll have to run along now, Helen, there's someone at the door."

Induction

WHETHER YOU term the process by the simple phrase "breaking in a new employe," or use "orientation" or "induction" to describe the methods of "introduction" the desired result is the transformation of an accepted applicant into a well trained and well adjusted employe.

The manner in which this introduction (induction) is conducted has an important bearing upon her future relationships in the business. It affects the employe's adjustment to the work and working conditions and to her follow workers. This in turn affects her satisfaction with her job, the quality of her work and the length of time she remains with the company.

To many girls — young women — this new job, perhaps her first one, means that she is facing a readjustment to a new life — new surroundings, new people, new habits. To almost anyone the first few days on a new job are difficult. Often there is a feeling of uselessness, a feeling of bewilderment which is unpleasant.

If this experience is made pleasant, the new employe will like her job

and will want to keep it and do it well.

Induction thus has two special objectives:

(1) To develop a satisfactory employe.

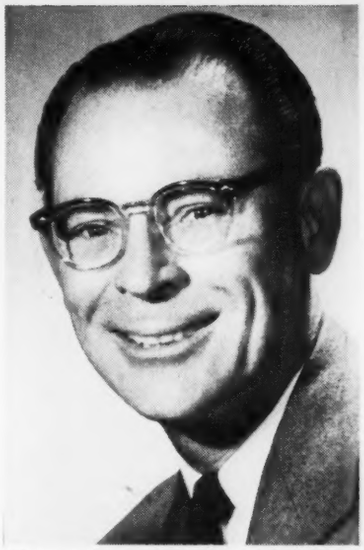
(2) To retain the employe in service.

The objectives will be achieved in two ways — through treatment and information. *Treatment* has to do with the manner of handling relationships between the individual operator and her fellow employes, the supervisor, and instructor and chief operator. It includes both personal contacts and those of a training nature.

Psychologists tell us that the strongest hunger in human nature is the craving to be appreciated. Whether this is actually true or not, certainly appreciation is a morale booster. Morale has been called the emotional result of how the worker *feels* about things. Part of this feeling centers about the desire for recognition as an individual, to be regarded and treated as a person. This means having one's abilities known and used, one's contributions recognized. To be a success in her job, an operator must be happy in her job. To be happy in her work, she must feel that her efforts are important, for when she feels she is needed she is more likely to cooperate fully in all phases of her work life.

This desire for recognition as an individual means that the employe does not want to be regarded as just "one of a crowd," still she must feel that she *belongs* in the crowd, that she is accepted and welcome. This belonging is the essence of team spirit. Since operating a telephone switchboard is definitely a group effort, it is only when all employes are "on the team" that the highest quality of service is possible.

If the employe is to be held in the service she must be inclined to like it so that in spite of some undesirable features she will want to keep it. If service objectives are kept before her, if the attitude of those who direct her is right, she will quite naturally acquire the desired "spirit of service." Remember always that "spirit of service" is not a slogan, a high flown phrase, it is a feeling that grows within a good employe and which becomes the impelling force to do "beyond the call of duty" when emergencies create a demand.



The appointment of RALPH C. GARBUTT to general purchasing agent for General Telephone Company of California was announced last month by Edwin M. Blakeslee, president of the company. Presently serving as methods engineer, Mr. Garbutt will assume his new post May 1 to replace Arthur E. Anderson, who, after many years as general purchasing agent, is now retiring. A native of California Garbutt was born and educated in Ontario, Calif. He began his telephone career in 1929 in the outside plant engineering department for the Ontario-Upland Telephone Co., which was incorporated into General's system in 1932.

It is not our thought to imply that a perpetual atmosphere of "sweetness and light" must prevail at all times in a traffic force. To do so would be to disregard the necessity for restraint and corrective action which is fundamental in molding a group into a working unit. Induction is in reality an application of the principles of sound human relations, and these same principles apply in the supervision of old as well as new employes. Any condition which lowers an individual's dignity discourages free participation in group effort. Public criticism (criticism before others) injures the ego more than does private criticism, and is likely to produce more undesirable than desirable results. The more a supervisor deals with people with these thoughts of human desires in mind the better her relations will be. Supervisors should take every honest effort to commend the work of those under their supervision.

In Part II of "Blueprint for a Traffic Force" we will deal with the *Information* portion of the induction process.

Send A Copy To Your Friends ..... Without Charge

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Please send a free copy of the May, 1954, issue of TELEPHONE ENGINEER & MANAGEMENT with my compliments to the persons listed below:

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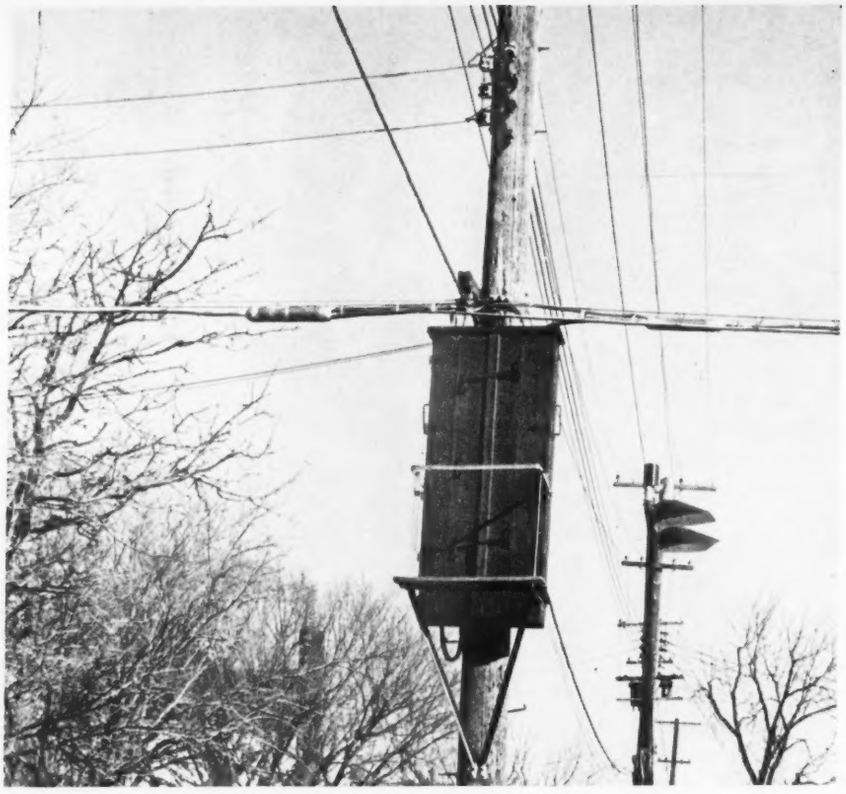


FIGURE 37—This cross-connecting terminal provides additional pairs from the feeder to connect to pairs in branch cables connected to the terminal.

CABLE PLANT CONSTRUCTION

By JOHN S. REED

In Section III-B of his training course, Mr. Reed discusses principles of cable relief procedure and describes several possible methods of obtaining needed cable relief.

Cable Relief Procedure

OVER A PERIOD of time, the initial cable fill becomes inadequate as the result of subscriber additions, particularly in areas of increasing population growth. Studies of the cable records will give warning of the approaching maximum cable fill. In addition, cable development information may indicate a need for extension of cable into areas of new housing.

When it is desired to relieve congestion in certain terminals or parts of existing cable, it may be possible to redistribute certain pairs in the cable to obtain access to vacant pairs otherwise unavailable to areas needing relief. This redistribution is possible only if the working pairs are multipled in such a manner that removing one or more multiples will furnish such a sufficient number of vacant pairs to provide needed service and leave some pairs over for future subscriber additions. This redistribution is affected by relocating present cable terminals or adding more terminals, transferring branch or feeder cable, or installing a cross-connecting terminal between a main feeder cable and certain branch cables.

As a matter of economy such transfers should be made only if they will coordinate with future permanent cable extensions or rearrangements. Sometimes judicious pair transfers will enable the postponement of the more expensive relief measures. In terminal-per-line offices, careful study should be made of redistribution plans to avoid separating party line stations which might make it necessary to assign more cable pairs, thus defeating the purpose of the pair transfer plan.

Cross-connecting terminals are

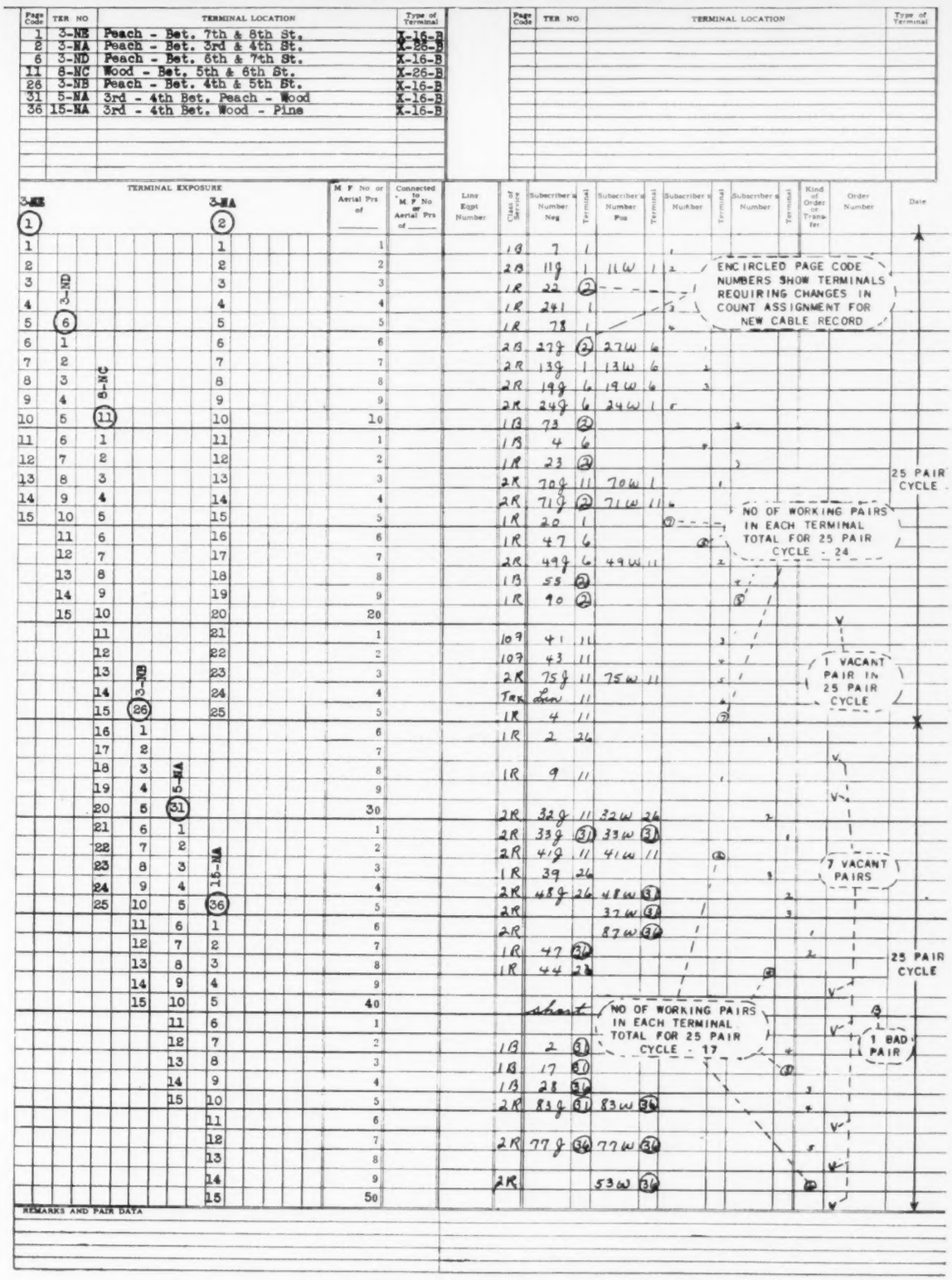

LT138-P
EX. CABLE NO. 1 SIZE 100 PRS., M.F. PRS. 1 TO 50 M.F PRS ON THIS PAGE M.F. NO. 1 TO 50 PAGE 1
Page Code
TER NO
TERMINAL LOCATION
Type of Terminal
1 3-NE Peach - Bet. 7th & 8th St. X-16-B
2 3-NA Peach - Bet. 3rd & 4th St. X-26-B
6 3-ND Peach - Bet. 6th & 7th St. X-16-B
11 8-NC Wood - Bet. 5th & 6th St. X-26-B
26 3-NB Peach - Bet. 4th & 5th St. X-16-B
31 5-NA 3rd - 4th Bet. Peach - Wood X-16-B
36 15-NA 3rd - 4th Bet. Wood - Pine X-16-B
TERMINAL EXPOSURE
3-NE
3-NA
3-ND
8-NC
3-NB
5-NA
15-NA
M F No or Aerial Prs of
Connected to M F No or Aerial Prs of
Line Eqpt Number
Class of Service
Subscriber's Number Neg
Terminal
Subscriber's Number Pos
Terminal
Subscriber's Number
Terminal
Subscriber's Number
Terminal
Kind of Order or Transfer
Order Number
Date
ENCIRCLED PAGE CODE NUMBERS SHOW TERMINALS REQUIRING CHANGES IN COUNT ASSIGNMENT FOR NEW CABLE RECORD
25 PAIR CYCLE
NO OF WORKING PAIRS IN EACH TERMINAL TOTAL FOR 25 PAIR CYCLE - 24
1 VACANT PAIR IN 25 PAIR CYCLE
7 VACANT PAIRS
25 PAIR CYCLE
NO OF WORKING PAIRS IN EACH TERMINAL TOTAL FOR 25 PAIR CYCLE - 17
1 BAD PAIR
REMARKS AND PAIR DATA

FIGURE 38—This cable record is under study to determine best method of relieving congestion due to sudden expansion of business in two parts of the town. The number of working, vacant, and bad pairs is being tallied for the cable study sheet. After the study is completed, the terminal page codes are encircled to show the pairs to be reassigned in the new record.

mainly used to redistribute working pairs on the central office side of the terminal to obtain vacant pairs that can be connected to pairs in branch cables in the area fed. It is not considered desirable to install terminals of this type unless they will provide the desired cable relief. Such terminals are seldom installed at the time the cable plant is established in the area served, but rather are placed when a study indicates that their use will defer more expensive cable relief measures. They are better adapted to areas of relatively slow

population growth, and where the cables involved are relatively large or heavily multipled.

A typical cross-connecting terminal is illustrated in *Figure* 37. The type in common use consists of rows of terminal lugs. One group of lugs connects to the main feeder pairs and the other to the branch cable pairs. By means of jumpers, any pair in the feeder can be connected to any pair in the branch cable. The office side of the cross-connecting terminal is sometimes designated the "in" side, while the subscriber side is called the "out" side.

Specific uses for the cross-connecting terminal are: (1) to relieve congestion on heavily multipled cable branches, and (2) to connect a given number of branch cable pairs to a smaller number of pairs in the feeder cable. The latter case may be found in areas which require rebuilding of the cable distribution plant and it is desired to place ultimate size branch cables containing a larger number of pairs than the feeder cables.

Cross-connecting terminals complicate the office record because of the need to maintain separate records for the office side and the subscriber side of the terminals as indicated in *Figures* 21 *and* 28.

For permanent relief, the existing feeder cable may be replaced with a larger cable to provide additional pairs for connecting more branch cables and placing additional terminals. A less expensive method, when the existing feeder cable is still in good shape, is to reinforce the present cable with another cable paralleling the existing cable or placed along another route. The alternative routing may be desirable to provide future feeds for a growing area.

The reinforcing cable may go directly to a point of relief where additional branch cables can be placed, without affecting the existing feeder or it may go to a certain section of the feeder which is then cut off from the rest and connected to the new feeder. Either arrangement results in two separate sections with additional pairs for serving new subscribers or providing service upgrades for present subscribers. In the first case, additional pairs were obtained directly from the feeder, while, in the second instance, the extra pairs are the ones freed from multiple with these pairs in the other section as indicated in *Figure* 43.

When it is decided that the cable plant will have to be expanded to provide for additional subscribers, the records and diagrams covering the area needing relief are studied. As in the original cable plant design, a count of present and prospective subscribers in the area is made. The rate of population growth, in particular, is carefully estimated to determine the number of extra pairs to allow for future subscriber additions. Present practice tends to an allowance of one cable pair per lot in the town plat, particularly in towns where there is an increasing demand for individual line service.

To give a simple illustration of the method of planning cable relief, let us take the case of a small, relatively slow growing community which is served by a magneto central office. A fifty pair cable serves the town with farm open-wire extensions into the country, and a single toll line connecting to a nearby large town. The cable in this placid community is considered sufficiently large to provide a comfortable margin of vacant pairs for 10 or 15 years.

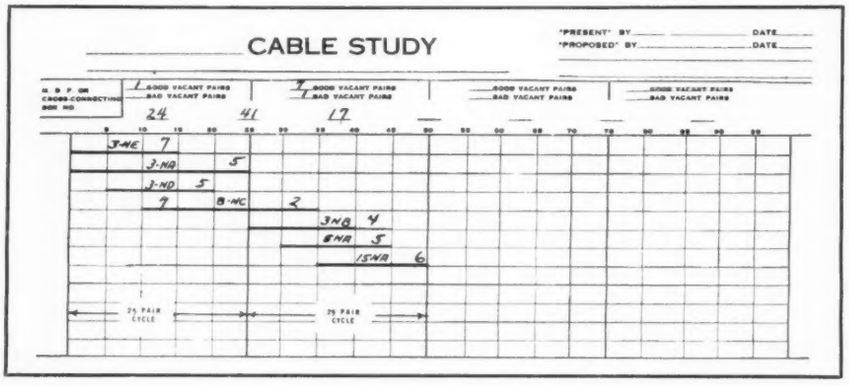


FIGURE 39—This study sheet summarizes the cable pair entries from the cable record (Figure 38) and indicates the terminal pairs in the main frame count and their multiples. Note that the number of working, vacant, and bad pairs always add up to 25 in each 25-pair cycle.

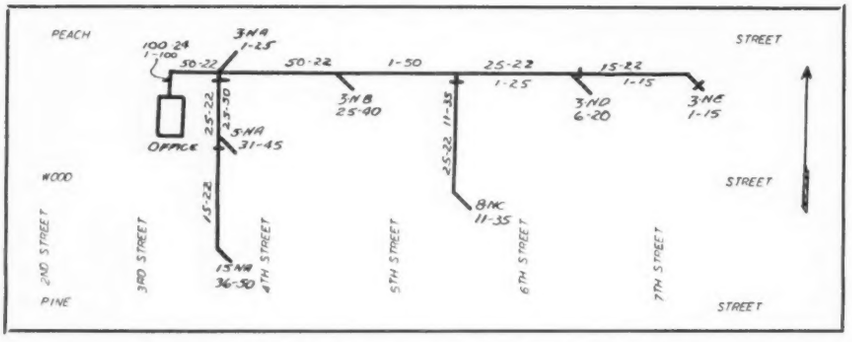


FIGURE 40—Cable diagram for the exchange under study.

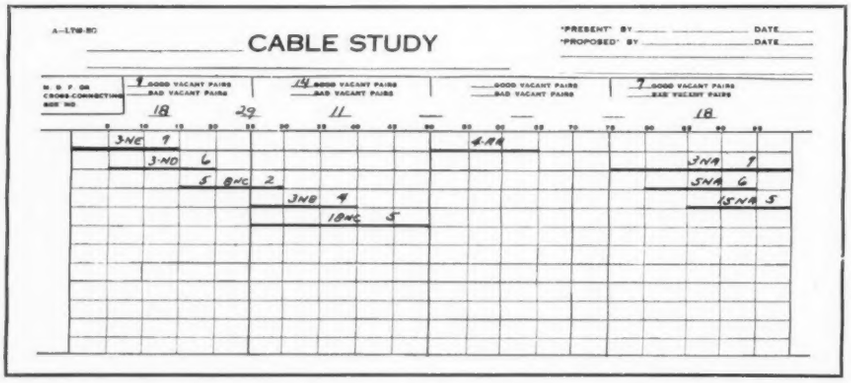


FIGURE 41—Study sheet revised to indicate desired changes in count assignments. In actual practice, the revision is made on the original study sheet (Figure 39) with terminal pairs to be replaced or relocated crossed out and the new or relocated terminal pairs shown in red.

Suddenly, however, a pipe line company decides to lay an important pipe line past the town and establish a booster station at the south edge of the town. At the same time, a new highway is located to pass the west edge of the town. This particular location is considered very desirable as a stopping place for truck transports bypassing the large town. Twelve lines are needed to serve the booster station and the surrounding area and six lines are requested for a motel, filling station, garage, and cafe on the highway site.

A study of the cable record as indicated in *Figures* 38 to 40 shows there are no facilities to serve the west area, and the present cable plant is inadequate for the proposed service in the south area. According to the study there are presently 41 working lines and 8 vacant pairs. One pair is bad, but can be replaced by the spare in the cable if necessary.

In the preliminary investigation, a count of working pairs, vacant pairs, and bad pairs is made, using the cable record (Figure 38). The number of pairs of each class in each terminal is tallied on the record, using a pencil to make the temporary notations shown. This information is transferred to a cable study sheet (*Figure* 39). This is a summary sheet which becomes the basis for changes in the main frame count. An examination of the cable diagram (*Figure* 40) and the study sheet points to the most satisfactory way in which cable relief can be provided for the project under consideration. Fifty pairs are added to the present 50-pair count, since the entrance cable already has 100 pairs. The terminal pairs are then distributed in the manner indicated on the revised study sheet shown in *Figure* 41.

Since there is no cable west of the central office, a 25-pair, 24-gauge cable extension is projected for this area with a 15-pair terminal at the far end. This cable is to be spliced into the 100-pair 24-gauge entrance cable, using twenty-five of the extra fifty pairs available. It is anticipated that there will be additional growth beyond the six pairs initially required.

To serve the booster station area, it is decided to provide a 50-pair, 24-gauge branch cable to the booster station location. This cable is to replace the 25-pair, 22-gauge cable and is to be spliced into the 50-pair main cable. To clear the count for this branch cable to serve at least 12 stations initially, a 25-pair reinforcing cable is spliced into the entrance cable to connect to the remaining vacant pairs available. This cable is spliced into a branch cable near the office and the branch cable is then severed from the main cable, taking 11 working pairs out of the 50-pair main cable. An additional seven pairs of relief is gained by throwing (transferring) terminal 3-NA from its existing count of 1-25 into the new reinforcing cable to a new count of 76-100.

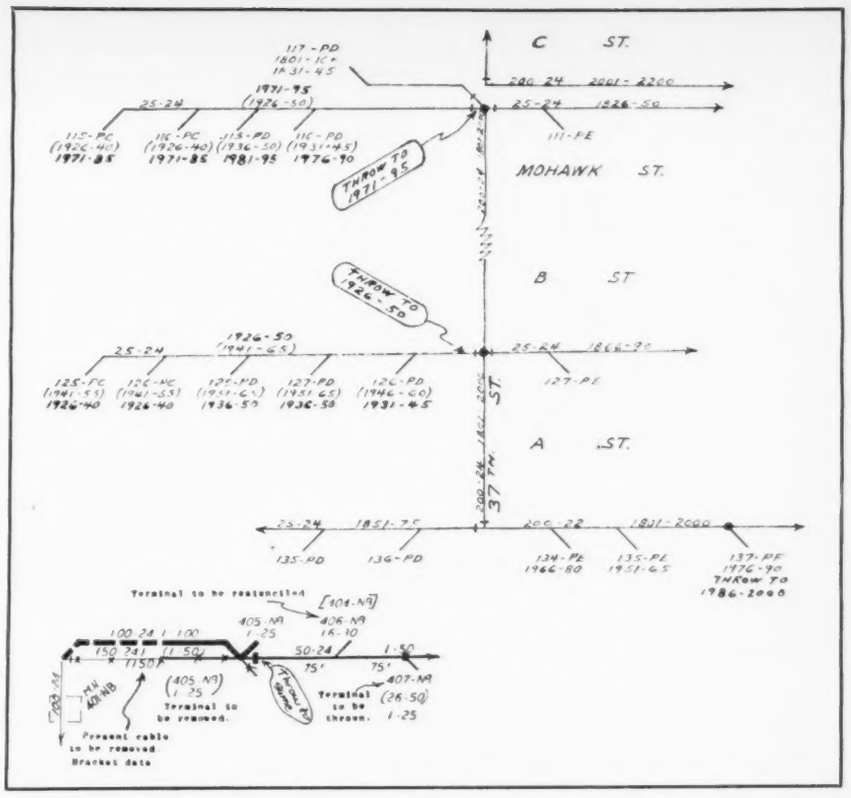


FIGURE 42—This is a typical cable working sketch used for instructing construction and splicing crews on work to be done in a cable relief project. Insert explains use of symbols listed in Figure 44.

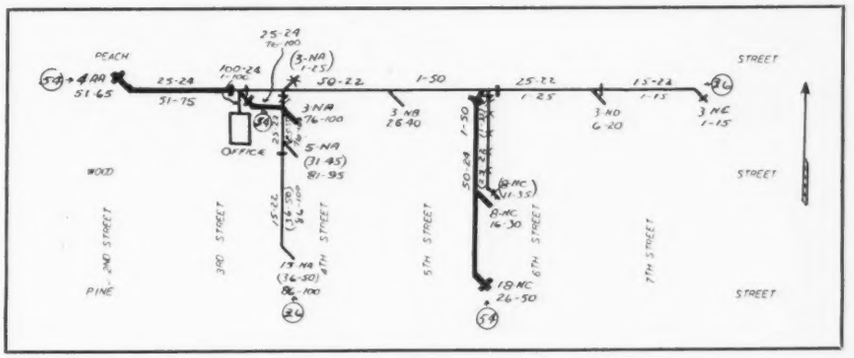


FIGURE 43—Working sketch for project under consideration.

On completion of the study, a cable working sketch is prepared to show the changes to be made by the construction and splicing crews. A typical sketch is illustrated in *Figure* 42. For the project under consideration, the working sketch is shown in *Figure* 43. The symbols used in the sketches are explained in *Fig.* 44.

When the project is completed, a new cable diagram is prepared from the working sketch for reference in locating cable routes and determining terminal location, numbers, and count assignments. The cable record is revised from its original form and now appears as indicated in *Figures* 45 (*a*) *and* (*b*).

In engineering the project, con-

sideration is given to a number of factors. One factor is that it is often cheaper to place a larger cable than actually required even for future provisions. For example, in the smaller cable sizes, it is uneconomical to order short lengths of different cable sizes for splicing at points of reduction in size. Taking 25- and 50-pair cables, there is very little difference in the cost between the two sizes, and handling charges and splicing costs may well prove far higher than the difference in the cost between these cable sizes.

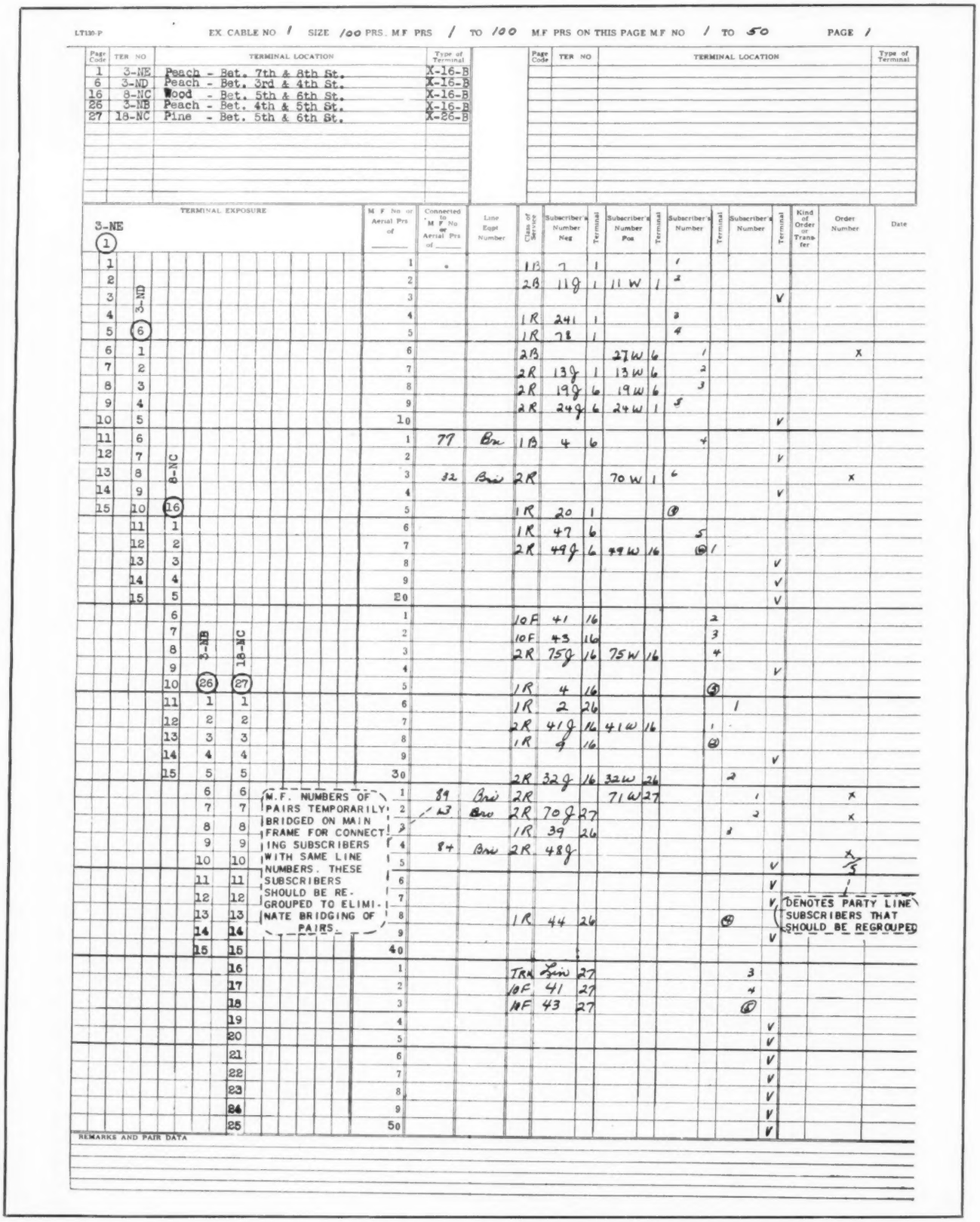

LT130-P
EX CABLE NO 1 SIZE 100 PRS. M.F PRS 1 TO 100 M.F PRS ON THIS PAGE M.F NO 1 TO 50 PAGE 1
Page Code
TER NO
TERMINAL LOCATION
Type of Terminal
1 3-NE Peach - Bet. 7th & 8th St. X-16-B
6 3-ND Peach - Bet. 3rd & 4th St. X-16-B
16 3-NC Wood - Bet. 5th & 6th St. X-16-B
26 3-NB Peach - Bet. 4th & 5th St. X-16-B
27 18-NC Pine - Bet. 5th & 6th St. X-26-B
TERMINAL EXPOSURE
3-NE
3-ND
3-NC
3-NB
18-NC
M F No or Aerial Prs of
Connected to M F No or Aerial Prs of
Line Eqpt Number
Class of Service
Subscriber's Number Neg
Terminal
Subscriber's Number Pos
Terminal
Subscriber's Number
Terminal
Subscriber's Number
Terminal
Kind of Order or Transfer
Order Number
Date
M.F. NUMBERS OF PAIRS TEMPORARILY BRIDGED ON MAIN FRAME FOR CONNECTING SUBSCRIBERS WITH SAME LINE NUMBERS. THESE SUBSCRIBERS SHOULD BE RE-GROUPED TO ELIMINATE BRIDGING OF PAIRS.
DENOTES PARTY LINE SUBSCRIBERS THAT SHOULD BE REGROUPED
REMARKS AND PAIR DATA

FIGURE 45A—New cable record made following completion of cable relief project. (a) First page (above) for M. F. pairs 1 to 50. (b) Second page (see opposite page) for M.F. pairs 50 to 100. Note that some two-party line subscribers have pairs bridged at the main distributing frame. This undesirable condition should be corrected at the time a new issue of the telephone directory is prepared.

It is also very important to note the number of bad pairs shown on the cable study sheet. When the number of defective pairs exceeds a certain limit, and the fill is approaching the maximum, as indicated by the small number of vacant pairs listed, the cable is ready for replacement. On the other hand, if there is a sufficient number of vacant pairs to take care of future assignments for a long period, even with additional pair failures, it is good economy to defer replacement of the cable and

(Please Turn Page)

LT186-P EX. CABLE NO. 1 SIZE 100 PRS., M.F. PRS. 1 TO 100 M.F. PRS. ON THIS PAGE M.F. NO. 51 TO 100 PAGE 2

Page Code	TER. NO.	TERMINAL LOCATION	Type of Terminal
1	4-AA	Peach & 2nd St. Intersection	S-16
26	3-NA	Peach - Bet. 3rd & 4th St.	X-26-B
31	5-NA	3rd - 4th Bet. Peach & Wood	X-16-B
36	15-NA	3rd - 4th Bet. Wood & Pine	X-16-B

Page Code	TER. NO.	TERMINAL LOCATION	Type of Terminal

TERMINAL EXPOSURE

4-AA (1) | 3-NA (26) | 5-NA (31) | 15-NA (36)

M. F. No. or Aerial Prs. of	Connected to M. F. No. or Aerial Prs. of	Line Eqpt Number	Class of Service	Subscriber's Number Neg.	Terminal	Subscriber's Number Pos.	Terminal	Subscriber's Number	Terminal	Subscriber's Number	Terminal	Kind of Order or Transfer	Order Number	Date
51														
2														
3														
4														
5														
6														
7														
8														
9														
60														
1														
2														
3														
4														
5														
6														
7														
8														
9														
70														
1														
2														
3														
4														
5														
6				1R	22	26			1					
7	6	Bri	2B	27 J	26			2					X	
8			1B	73	26			3						
9			1R	23	26			4						
80			1B	55	26			5						
1			2R	33 J	31	33 W	31	1						
2			1R	90	26			(6)						
3										V				
4	34	Bri	2R			48 W	31	2					X	
5			2R			37 W	31	3					X	
6			2R			87 W	31	4					X	
7			1R	47	36					1				
8										V				
9	31	Bri	2R	71 J	26			(7)					X	
90										V				
1										V				
2			1B	2	31			5						
3			1B	17	31			(8)						
4			1B	28	36					2				
5			2R	83 J	31	83 W	36			3				
6										V				
7			2R	77 J	36	77 W	36			4				
8										V				
9			2R			53 W	36			(9)				
100										V			X/6	

VACANT PAIRS TO BE ASSIGNED TO NEW AND PROSPECTIVE SUBSCRIBERS

REMARKS AND PAIR DATA

FIGURE 45-B—New cable record made following completion of cable relief project. (a) (see opposite page)—First page for M.F. pairs 1 to 50. (b) (above) Second page for M. F. pairs 50 to 100. Note that some two-party line subscribers have pairs bridged at the main distributing frame. This undesirable condition should be corrected at the time a new issue of the telephone directory is prepared.

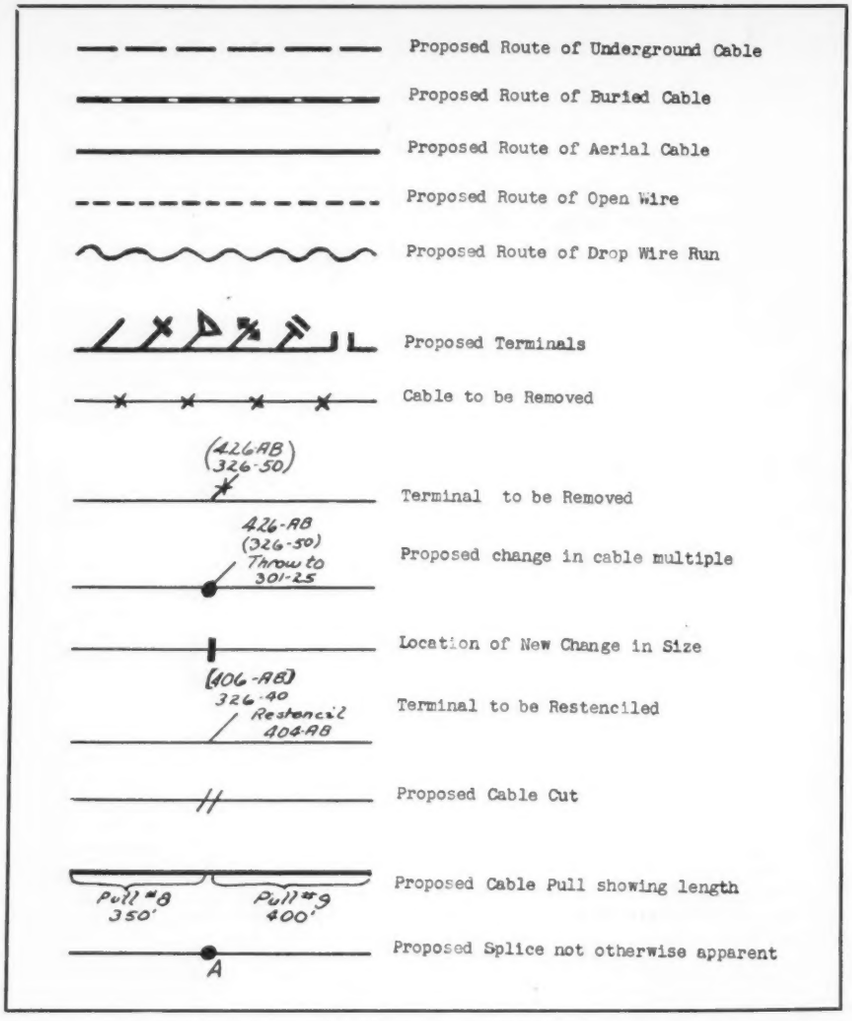

Proposed Route of Underground Cable
Proposed Route of Buried Cable
Proposed Route of Aerial Cable
Proposed Route of Open Wire
Proposed Route of Drop Wire Run
Proposed Terminals
Cable to be Removed
(426-AB) (326-50)
Terminal to be Removed
426-AB (326-50) Throw to 301-25
Proposed change in cable multiple
Location of New Change in Size
(406-AB) 326-40 Restencil 404-AB
Terminal to be Restenciled
Proposed Cable Cut
Pull #8 350'
Pull #9 400'
Proposed Cable Pull showing length
A
Proposed Splice not otherwise apparent

FIGURE 44—These symbols are employed for indicating elements of cable plants proposed for addition or removal on working sketches. Proposed elements are shown in heavy outline.

Questions on Part III—Cable Diagrams; Use of Cable Records and Diagrams for Assigning Service, Cable Relief Procedures.

(1) What is a cable diagram?

(2) Draw symbols for (a) route of aerial cable, (b) route of underground cable, (c) cross-connecting terminal for aerial to underground cables, (d) unprotected pole distributing terminal, (e) protected pole distributing terminal, (f) location of manhole.

(3) Why is it so important to keep cable records and diagrams up to date?

(4) Describe briefly the procedure your company follows in assigning cable pairs.

(5) What is the purpose of regrouping party line subscribers from time to time? When is this generally done?

(6) From the viewpoint of retaining as many vacant pairs as possible, what would be the proper thing to do in assigning cable pairs?

(7) Give an example to illustrate how a pair cut or transfer is made.

(8) What does a cable relief plan seek to accomplish. Describe the several possible methods of obtaining needed cable relief.

(9) What is a cable working sketch? Indicate how the symbols differ from those used for a regular cable diagram.

(10) Explain why it is undesirable to bridge cable pairs at the main distributing frame to connect two party line subscribers split apart in a count reassignment.

put off having splicing crews clear the faulty pairs.

Another factor to watch is the age of the cable. While it is true that lead-covered cable in some situations will deteriorate faster than other cable under different conditions, the year in which the cable was placed will indicate to the experienced engineer the probable time when the cable will have to be replaced. It is thus important to show the year the cable was installed on the cable diagram.

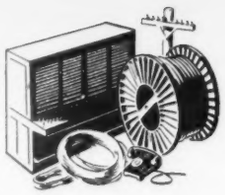
When the cable record is revised, it will be found that a number of two-party (or four-party) line subscribers are bridged back to their old main frame number assignment. This arrangement is undesirable, because it results in two cable pairs being connected together at the main distributing frame for each two party line involved, and causes a loss of one cable pair in each case. It is, however, necessary in order to maintain the subscribers' old numbers and preserve the proper ringing connections for two- or four-party signaling, until a new issue of the telephone directory is prepared and the subscribers can be regrouped under new number assignments. In manual offices, it may be possible to regroup the subscribers immediately and rely on the operators to properly connect these subscribers when the old number is given.—To Be Continued.

Telephone Sales & Service Merges With Kellogg

C. D. Manning, vice-president of Kellogg Switchboard & Supply Co., Chicago, a division of International Telephone & Telegraph Corp., has announced that effective Jan. 1, 1954, Telephone Sales & Service Corp., 157 Chambers Street, New York, N. Y., has merged with Kellogg Switchboard & Supply Co. and will be operated as a branch office, principally for Selecto-Phone and other intercommunication equipment.

Telephone Sales & Service Corp. was a subsidiary of the Kellogg company until Kellogg became a division of International Tel. & Tel.

The new branch is the 7th regional warehouse for Kellogg. The others are located in San Francisco, Kansas City, Dallas, St. Paul, Mansfield (Ohio), and Chicago. H. F. Bradley was appointed manager of the new branch.



PLANNING AND INSTALLATION OF CENTRAL OFFICE EQUIPMENT

By W. T. REICHEL

The planning and installation of a new telephone central office requires facts which must be carefully studied. This article suggests a conversion schedule which can be modified for any size installation.

THE PLANNING and installation of a new telephone central office, like all other buildings, must be built upon facts, carefully studied and planned, so that when completed, it will be economically sound, provide for the future, and assure customer satisfaction.

In order to clearly show the necessary steps, we have taken as an example a typical exchange in the Independent telephone business which has outgrown the present equipment and therefore must be expanded or replaced.

The management of the company upon recognizing the inadequacy of these existing facilities, instructed the *Commercial* and *Traffic Engineers* to make the necessary surveys and studies to determine what should be done, in order to provide adequate telephone service for this community. These are two of the most important steps required in properly, as well as economically designing a new Central Office installation.

The Commercial Job

LET US FIRST consider the ground work which must be laid by the Commercial Engineers. They must as accurately as possible determine the subscriber load for the 10-year ultimate established by the management of the telephone company. The engineers will record every vacant dwelling, every occupied dwelling without service, dwellings under construction and will check for contemplated construction of potential subscribers. They will then estimate the grade of service that may be required or demanded by these potential subscribers. A check will also be made as to the program and development of the community in the preceding 10 year period and will attempt to forecast the potential growth in the following 10 year period.

Armed with this information and barring any unforeseen activity in the community, the Commercial Engineer may be able to give a fairly accurate estimate as to the local subscriber line requirements of the Exchange at cut-over time, as well as the 10 year ultimate.

Careful study and consideration shall be given to the point of community interest and its relative importance in the overall planning. This point of interest if located in some other community rather than the one under study, will play an important part in determining the type of service between communities in question, as well as the number of trunks that would be required. In this particular case the main point of community interest was Mansfield, Ohio, the larger of the contiguous exchanges and also the county seat of the county in which this community was located. Of the other four (4) contiguous exchanges one was owned by The Mansfield Telephone Co. and three (3) by two other connecting companies, with the interest being fairly well balanced to each of these four (4) exchanges.

The Traffic Job

NOW LET US take a look at this problem from the Traffic Engineers' point of view. The traffic engineers will make a very complete study into every phase of this particular problem. They are interested in the present local calling rate as well as the traffic in the various trunk groups to the contiguous exchanges and to the long distance switchboard.

The engineers will review the calling rate experience over the preceding 10 year period and will estimate a trend for the succeeding 10 year period following cut-over for both the local and trunk traffic. These studies will be based on a grade of service of one lost call in 100.

By following Molinas Traffic Tables for this grade of service, it will be possible to accurately determine the quantity of equipment required for each type of service to be provided to the subscriber, as well as the number of trunks required to the contiguous exchanges. This information is very important, as a great deal depends upon its accuracy for a successful conversion and so that the exchange can be so designed as to meet the ultimate requirements and demands of the subscribers.

The Commercial Study

LET US NOW examine the work of the two groups of engineers

GREATLY IMPROVED TRANSMISSION

Laboratory tests have proved that this new LEICH 700 telephone provides up to 5 decibels gain in transmission. This more life-like voice reproduction results from the new short Leich handset which places the transmitter closer to the speaker's mouth. You'll notice this improvement right away.

Does your present

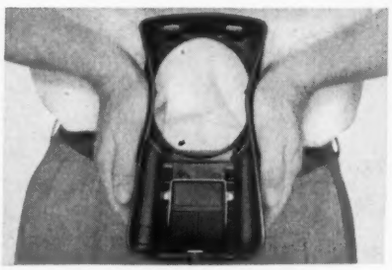
LEICH 700

EXTENDED DIAL RING

Your customers will really like the big, easy-to-read numbers on the outside of the dial. There's no wearing of numbers, you'll have fewer wrong numbers.

HOOKSWITCH LATCH

Many companies find the hookswitch latch invaluable for party line service. It prevents transmission losses when other parties on the line listen in, prevents interference with dial pulsing.

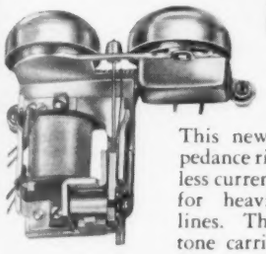


A REALLY TOUGH CASE

Now, we've reduced case breakage to the very minimum. The resilient plastic case will give, but it won't break.

LEICH

NEW, SINGLE-COIL, HIGH IMPEDANCE RINGER



This new high impedance ringer draws less current, is better for heavily loaded lines. The bell-like tone carries well.

NEW, MORE POSITIVE, TROUBLE-FREE HOOKSWITCH

No telephone can be better than its hookswitch. This Leich 700 hookswitch has been carefully engineered so you can depend on it for many years of dependable operation.

HANDY LIFT PLATE

Not only will your customers appreciate this sure-grip finger hold. You'll like it too because it will reduce the possibility of dropping the telephone.

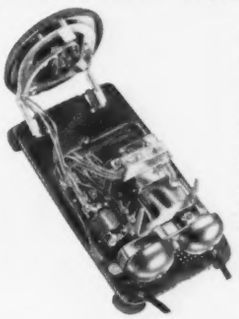
telephone have all these FEATURES?

You can't expect your present old-style telephones to have all the latest engineering features. Nor can you expect them to have the modern design and service extras that will make your subscribers tickled pink about your service.

Read—on this page—about all the wonderful, **practical** new advantages that you can have with this LEICH 700 telephone.

Why wait? The next time you need instruments, buy this new, improved LEICH 700 telephone. You're getting **more** telephone for your money. **Write today for catalog and prices.**

ALL PARTS EASILY ACCESSIBLE



Your service men will appreciate this telephone. Loosen one screw and the cover comes off. All parts are in full view, easy to get at. All parts may be individually replaced whenever necessary.

ADAPTABLE FOR EVERY TYPE OF SERVICE

This one telephone is available or can be easily adapted for every common battery or dial service requirement. It can be furnished for every kind of ringing, there's provision for ringing tubes, it's available with a hookswitch latch.

THE SAME INSTRUMENT IS EITHER WALL OR DESK MODEL

You save time and money with this feature. For desk use, set your Leich 700 telephone down. For wall installations, just turn it over and mount it on the wall. In this way you need to stock fewer telephones, your installer always has the right telephone.

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

LEICH SALES CORPORATION 427 W. RANDOLPH STREET CHICAGO 6, ILLINOIS

PACIFIC COAST: 2611 SAWTELLE BLVD., LOS ANGELES 64, CALIF. SOUTHWEST: 1227 SLOCUM ST., DALLAS 7, TEXAS

GENERAL TELEPHONE TELEPHONE SYSTEM

and see the combined results of their efforts. The Commercial Engineers' study indicates that one (1) and two (2) party business and residence service should be provided along with eight (8) party service in the base rate area and ten (10) party services in the rural areas, with local toll free service to the Mansfield and Adario Exchanges. Toll service to Plymouth and Shelby will be ticketed by the respective operators. Long distance toll service will be provided by the Mansfield Toll Board.

Commercial studies show that the Central Office Equipment and Building should be designed to provide an initial 150 lines with an ultimate of 300 lines. The combined Commercial and Traffic figures show that the initial installation of equipment should provide for local and trunk traffic grading capable of handling an adequate unit calling rate in the busy hours.

If this same case is considered from the standpoint of extended area service, we find that the picture changes materially in the various trunk groups and traffic handling equipment involved. Experience has shown that it would be necessary to increase the trunks to each of the exchanges included in the extended area group and the Engineers are using a multiplier of 3.60 in determining the number of trunks required. In other words each of the trunk groups, other than those receiving free service, would be multiplied by 3.60, in order to provide a traffic grading of 1 lost call in 100 over these trunks on a free service basis. It would likewise mean expanding the selector groups involved and this obviously would become a very expensive installation and would materially affect the economic picture of this exchange. The new result would mean higher rates to the subscriber in order to retire this additional investment. In this particular case there is little demand for extended area service to the other smaller exchanges.

We find that the service over the various local trunk groups is very good, therefore, the extended area problem is of little importance at this time and the additional cost to the subscriber could not be justified.

If we were considering this problem from the stand point of a manual switchboard installation, it is quite possible that adequate telephone service could be provided by merely making additions to the existing equipment. It is not necessary to convert to dial operation in order to provide good telephone service, as a matter of fact, a good manual installation will provide a more personalized service than that found in a dial exchange. The only problem that could affect this decision would be one where the availability of operating personnel was limited. If the telephone company is experiencing difficulty in obtaining operators or the wage scale is excessive due to the demands of industry on the labor market, serious consideration to a dial conversion would be warranted.

The Commercial and Traffic Engineers having presented their studies, we ask all of the manufacturers to give us a proposal on a firm bid basis for a period of 60 days after they have had 45 days in which to prepare their specifications and submit their proposal. The manufacturer is asked to submit a tentative floor plan with his proposal. From this, plant engineering prepares the floor plan drawings. If Commercial and garage facilities are to be provided in the same building, the space requirements are designated on the floor plan.

A survey of the lot is usually made shortly after the contract for the

SCHEDULE — OHIO CONVERSION

ITEM ONE—Work Necessary to Complete and Equip the Central Office Building

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPONSIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
Building Grounds	1	Construct Building	53-AA	Executive Plant	4- 1-53	7- 1-53	
	A	Accept Buildings	53-AA	Executive	3- 1-53	3-15-53	
	B	Let Contract	53-AA	Executive	3-16-53		
	C	Coordinate Power, Electric, Telephone Requirements of C.O. with Contractor	53-AA	Plant	4- 1-53	7- 1-53	
	D	Acceptance Inspection	53-AA	Plant		6-30-53	
	2	Building Equipment	Routine	Traffic Commer'l Plant	4- 1-53	10-20-53	
	A	Commercial Office Desks, Equip. Etc.	Routine	Commer'l	4- 1-53	10-20-53	
	B	Traffic - Lounge Furniture, Lockers, Other Equipment	Routine	Traffic	4- 1-53	10-20-53	
Building Grounds	C	Plant - Workbenches, Lockers, Etc.	Routine	Plant	4- 1-53	10-20-53	
	D	Fire Protection Equipment	Routine	Plant	4- 1-53	7- 1-53	
	3	Janitor Supplies	Routine	Plant	7- 1-53	11- 1-53	
	A	Personnel, Schedules	Routine	Plant	7- 1-53		
	B	Supplies - Equipment, Etc.	Routine	Plant	7- 1-53		
	4	Improve Grounds	Routine	Plant	7- 1-53	11- 1-53	
	A	Clean, Grade	Routine	Plant	7- 1-53	11- 1-53	
	B	Landscape	Routine	Plant	7- 1-53	11- 1-53	

equipment is signed. Stakes are driven at each corner. An inspection is also made to determine grade and drainage, also floor height above normal lot elevation. Locations of all utilities are noted. Electric power, sewer, gas, water, and location of septic tank and dry well if required. Local health department is contacted in regard to septic tank and dry well regulations, if the building is to be so equipped. Local authorities are contacted to determine in advance all zoning regulations and type of construction permitted under zone and fire regulation ordinances.

Immediately after the plans have been drawn and approved and location of the cable entrance shown, a set of plans are mailed to the manufacturer. From these plans the manufacturer will develop his final floor plan showing location of all the equipment, cable rack runs, M.D.F. and Central Office ground. We find it best to specify location of M.D.F. and carrier equipment also space requirements for future additions to M.D.F. and carrier equipment. We also show all door and window openings and location of radiators or any other heating units.

This avoids many unnecessary changes as the equipment is being installed and saves considerable on installation time.

SCHEDULE — OHIO CONVERSION

ITEM TWO—Details of Work for Underground Cable.

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPON-SIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
U.G. Cable	1	Entrance Cable	53-AB	Plant	4- 1-53	8- 1-53	
	A	Install Ducts, Pull in Irons, Cable Rack Bolts	53-AB	Plant Supt.	4- 1-53	7- 1-53	
	B	Install C.O. Ground Before Foundation is Poured	53-AB	Plant Supt.	4- 1-53	4-15-53	
	C	Check all Sleeving Before Concrete is Poured-Cable, M.D.F. Power, Tel., Etc.	53-AB	Plant Supt.	4- 1-53	5- 1-53	
	2	Place New U.G. Entrance Cable	53-AB	Plant Supt.	7- 1-53	8- 1-53	
	A	Pull in New Cable Gas Test Each Section	53-AB	Plant Supt.	7- 1-53	8- 1-53	
	B	Make Splice For Half-Tap-Flash Test Each Sleeve	53-AB	Plant Supt.	7- 1-53	8- 1-53	
	C	Place and Splice Textile Cable to M.D.F.	53-AB	Plant Supt.	7- 1-53	8- 1-53	
	D	Complete Splicing After Conversion	53-AB	Plant Supt.	11- 2-53	12- 1-53	
	E	Remove Dead Plant	53-AB	Plant Supt.	11- 2-53	12-15-53	

SCHEDULE — OHIO CONVERSION

ITEM THREE—Work Necessary for Aerial Cable Construction & Addition.

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPON-SIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
Aerial Cable		Plant Additions	53-AC	Plant Supt.	4- 1-53	9- 1-53	
	A	Install New Cable For Growth	53-AC	Plant Supt.	4- 1-53	9- 1-53	
	B	Reconcentrate, Regroup Existing Plant	53-AC	Plant Supt.	9- 1-53	11-30-53	

Equipment Maintenance

THE MAINTENANCE of the equipment is very important and the man or men who will be responsible for its operation after cut-over are usually about a year in advance of actual cut-over time. If the workman has had experience on similar equipment he does not receive any special training. If the equipment is new to the workman he is sent to the factory for schooling. He then assists factory installers in its installation and testing. After cut-over the workman is usually competent to make all necessary adjustments and repairs with an occasional visit from the field equipment supervisor.

With the Central Office Equipment placed on order, and the decisions made as to the type and kind of building to be constructed, some 24 or 30 months will elapse before the equipment can be received and installed. However, this time is not wasted, for depending upon the size of the conversion, much time can be utilized to complete all preparations, to rebuilding and adding to existing outside plant, making careful studies of the possibilities of regrouping party lines, and in short, making sure that the Central Office will be equipped with outside plant facilities to give the subscribers the full and complete benefit of such conversion.

In order to have a successful conversion, it is necessary that the efforts of all departments of the telephone company be coordinated so that nothing will be left undone. This can best be done by setting up a conversion schedule with all items of work specified, along with departmental responsibility. We have made up a specimen conversion schedule which can be modified for any size installation by removing those portions which do not apply. This schedule is made up in report form at definite intervals by means of a staff meeting of all involved, so that at the time of cut-over all items will be completed. ***(Please Turn To Page 62)***

"Today's high labor cost makes low maintenance imperative."

"When you buy switching equipment, you're making a major investment. You have to be right."

"Exchange areas are expanding these days. Switching equipment must expand—and economically."

"Customer toll dialing is coming—and who knows what else? You need switching equipment that can adapt to any requirement."

Each telephone man will give you his own reason for buying Strowger Automatic. But all their reasons can be summed up into one: they bought it because they *knew* it would meet today's need best—and gives the best promise of meeting *tomorrow's!*

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus • Electrical Engineers, Designers and Consultants

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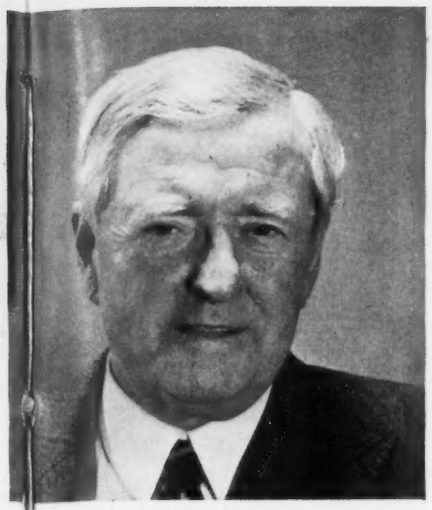


"urrent building developments are bring-g traffic changes. Switching equipment has to change easily to meet them."

Ask 'em

why they're all buying Strowger Automatic

This year again, they're choosing Strowger—because they know what it will do! Sixty years' experience with Strowger Automatic has proved these facts:

Fact #1: Strowger Automatic Maintenance Costs Less. Circuits are simple—permit fast routining by less costly, semi-skilled men. The few wearing parts are quickly, easily, inexpensively replaced. And Strowger Automatic is expertly made—stays trouble-free, needs little care. Experience proves it!

Fact #2: Strowger Automatic is Unequalled for Dependability. Now and then an old Strowger Automatic exchange is replaced with more modern Strowger Automatic equipment containing the latest circuits. But no Strowger Automatic exchange has ever worn out. Experience proves it!

Fact #3: Strowger Automatic is Unequalled for Flexibility. Each switch is complete with its own control relays. All switches can be easily jacked in or pulled out as needed. The result is simplicity and speed in trunking changes and alterations in traffic patterns. Experience proves it!

Fact #4: Strowger Automatic Grows Economically. You merely add switches, shelves, or complete frames, and initial equipment and existing service are not disturbed. You meet every growth requirement with Strowger Automatic. Experience proves it!

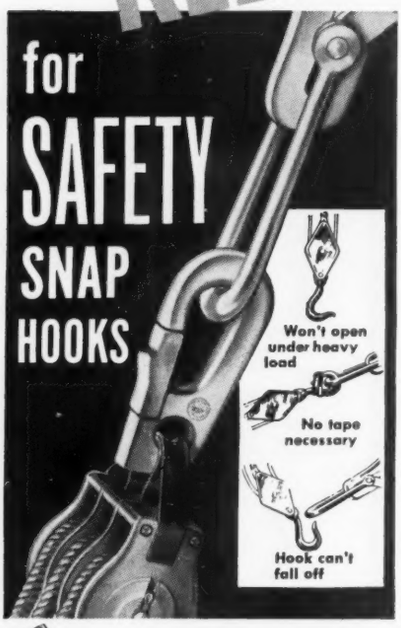
Fact #5: Strowger Automatic provides the most modern Toll Service. Intertoll connectors, automatic toll ticketing, digit-absorbing switches—every facility for both operator and subscriber toll dialing have been developed by Automatic and found dependable in the field. Experience proves it!

Remember these facts when you are considering automatic switching equipment.

Look to the Leader

KLEIN

for SAFETY SNAP HOOKS



455 Solid Eye

Here's strength, safety on heavy loads—for blocks, tackles and hoists. Klein Safety Snap Hooks are time savers, too, eliminating the necessity of taping or wiring the throat. Made of drop forged steel—carry a working load of 8,000 pounds with adequate safety factor. Snap on easily with one hand—may be used on any conventional steel block 6 inches or smaller, or on chain hoists or snatch blocks. Four types regularly available. Specify 455-SH-3 Snap for use with 1½-ton hoists . . . No. 455-SP for double chain hoists and for attachment at housing. Klein can also supply safety snap hooks for lighter loads.

455-S Swivel Eye

455-SH Swivel Eye

Foreign Distributor: International Standard Electric Corp., New York

455-SP

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Planning The Central Office

(Continued from Page 59)

Item One of this schedule sets out the work necessary to complete and equip the Central Office building. Where used, *Item Two* details the work for underground cable and *Item Three*, work necessary for aerial cable construction and addition.

Item Four details the actual cen-

SCHEDULE — OHIO CONVERSION

ITEM FOUR—Central Office Equipment Installation.

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPONSIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
Central Office Operations	1	Install M.D.F.	53-AD	Plant Supt. Contractor	7-15-53	7-30-53	
	A	Terminate Textile Cable on M.D.F.	53-AD	Plant Supt.	7-30-53	9- 1-53	
	B	Test from Old M.D.F. to new M.D.F.	53-AD	Plant Supt.	7-30-53	9- 1-53	
	2	Install Central Office Equip.	53-AD	Plant Supt. Contractor	7-15-53	11- 1-53	
	A	Install-Lighting C.O. Equip. Racks	53-AD	Plant Supt.	7-15-53	11- 1-53	
	3	Train Employes	Routine	Plant Supt.	1- 1-53	11- 1-53	
	A	Central Office Maintenance Men	Routine	Plant Supt.	1- 1-53	11- 1-53	
	B	Test Men Repair Clerks	Routine	Plant Supt.	1- 1-53	11- 1-53	
	4	Assign Traffic Distribution, & Numbering	Routine	Traffic Supt.	1- 1-53	9-15-53	
	A	Advance Regrouping	Routine	Traffic Supt. Plant Supt.	7-15-53	10- 1-53	
	B	Run Jumpers M.D.F.	53-AD	Plant Supt.	8- 1-53	10- 1-53	
	C	Prepare line Records IF - Conn. Terminals Cross Reference	Routine	Plant Supt.	8- 1-53	10- 1-53	
	D	Arrange with Connecting Company Toll Move, Etc.	Routine 53-AD	Commer'l Traffic Plant	7- 1-53	11- 1-53	
	5	Testing - Call through New Equip. to all Sub's. Stations	53-AD	Plant Supt.	10- 1-53	10-30-53	
	6	Prepare Detailed Cutover Plan	Routine	Traffic Plant	9- 1-53	11- 1-53	
	7	Arrange Cutover Ceremonies	Routine	Executive Commer'l Traffic Plant		11- 1-53	
	8	Set Up C.O. Routines	Routine	Plant Supt.	7- 1-53	11- 1-53	
	9	Final Regrouping At Cutover	53-AC	Traffic Plant		11- 1-53	

SCHEDULE — OHIO CONVERSION

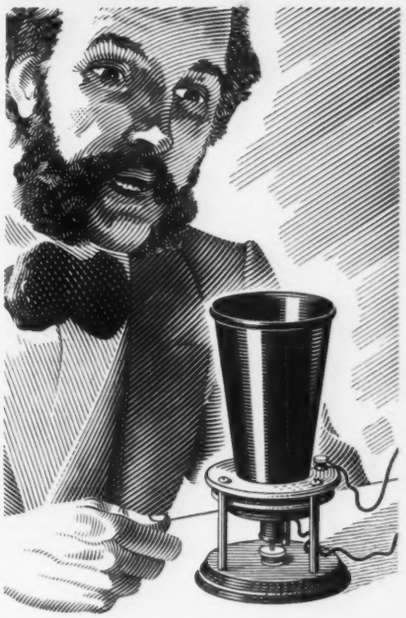
ITEM FIVE—Subscriber Station Equipment Work.

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPONSIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
Subscribers Station Equipment	1	Replacement of Telephones	53-AE	Plant Supt.	4- 1-53	10- 1-53	
	2	Installation of Dials On Telephones in Service	53-AE	Plant Supt.	4- 1-53	10- 1-53	
	3	Inspect Station Wiring	Routine	Plant Supt.	4- 1-53	10- 1-53	
	A	Check Address, Equipment, Other Records, At Inspection	Routine	Plant Commer'l	4- 1-53	10- 1-53	
	B	Test Each Line As Inspected For Trouble, Dial Speed	Routine	Plant	4- 1-53	10- 1-53	
	C	Place New Number on Dial Card	53-AE	Plant	4- 1-53	10- 1-53	
	4	Modify All PBX For Auto. Operation	53-AE	Plant Traffic	7- 1-53	10- 1-53	
	A	Instruct Operators In Auto. Operation	Routine	Traffic	10- 1-53	11- 1-53	
Testing, Repairing Existing Plant	1	Breakdown Test Each Cable Leg	Routine	Plant Supt.	6- 1-53	10- 1-53	
	A	Record and Repair Low Insulation Resistance Cable Found Above	Routine	Plant Supt.	6- 1-53	10- 1-53	
	B	Record and Repair High Leak Cable Found Above	Routine	Plant Supt.	6- 1-53	10- 1-53	
	2	Record and Repair All Defective Drops, Etc. Found in 3B, Station Test	Routine	Plant Supt.	6- 1-53	10- 1-53	
	A	Check Clearance, Tree, Street, Power, Etc.	Routine	Plant Supt.	6- 1-53	10- 1-53	
	B	Check Contacts Permission, Records, Etc., Pole Line	Routine	Commer'l Plant	6- 1-53	10- 1-53	
	3	Trim Trees All Leads	Routine	Plant Supt.	6- 1-53	10- 1-53	

tral office equipment installation, coordinating the work of the contractor with that of the local company forces. Here particular attention is given to the setting up and maintaining proper central office records.

Items 5+5-A specify the necessary work to arrange the subscriber station equipment for operation under the common battery or automatic conversion, and the necessary inspection to assure the subscriber of trouble free operation. Along with this it ties in the testing and repairing of existing plant and the assignment

(Please Turn To Page 66)



The invention that shaped the world

"**Mr. Watson,** come here, I want you," spoken March 10, 1876 by Alexander Graham Bell . . . were the first words transmitted by telephone. Although these words were transmitted from one room to another . . . it was the beginning of one of the greatest advances in communication history.

The first Hemingray Glass Insulators were made in this same era. Through constant research and development they have kept pace with the insulator requirements of communication systems of the world.

If you need an insulator for a communication job—it's in the Hemingray line. Most jobbers carry complete stocks. Write for free descriptive catalog.

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AN (I) PRODUCT

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GENERAL OFFICES · TOLEDO 1, OHIO

Know anybody who doesn't like to save money?

Naturally not. So there's a ready-made audience for the advertisement across the page. But the advertisement does much more than remind readers of May magazines that federal excise taxes on telephone service have been reduced. It points out that the entire amount of the saving comes off the bills of telephone customers, with none retained by telephone companies. . . . Thus it strengthens the all-important feeling of friendliness between those who use and those who supply telephone service.

Good News for Telephone Users

FEDERAL EXCISE TAX ON LONG DISTANCE	FEDERAL EXCISE TAX ON LOCAL SERVICE
REDUCED	REDUCED
FROM 25% TO 10%	FROM 15% TO 10%

THE reductions in federal excise taxes, voted recently by Congress, mean substantial savings for telephone users. Your telephone bill is lowered by the entire difference between the old and the new taxes.

Instead of paying 25% on Long Distance calls, you now pay 10%. On Local telephone service, the tax is now 10% instead of 15%.

The entire amount of the saving in taxes comes off the bills of our customers. None of it is retained by the telephone companies.

The reductions went into effect on April 1 and apply to service billed to you on or after that date.

Now it costs you even less to keep in touch by telephone.

BELL TELEPHONE SYSTEM

ITEM FIVE-A—Subscriber Station Work (continued)

Cable Assignment	1	Prepare Cable Assignment List, M.D.F.	Routine	Plant	6- 1-53	10- 1-53
	A	Run M.D.F. Jumpers in Accordance with Above	Routine	Plant	6- 1-53	10- 1-53
	2	Prepare Final Assignment After Cutover, Cable Throw	Routine	Plant	6- 1-53	10- 1-53
	A	Prepare Jumpers In Accordance With Above	Routine	Plant	10- 1-53	11- 1-53
	B	Furnish Contractor With LIDF - TIDF Cross Connect List	Routine	Traffic Plant	8- 1-53	8-15-53

SCHEDULE — OHIO CONVERSION

ITEM SIX—Traffic Department Work.

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPON-SIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
Traffic	1	Operator Instruction	Routine	Traffic Supt.	7- 1-53	11- 1-53	
	A	New Aut. Operation	Routine	Traffic Supt.	7- 1-53	11- 1-53	
	B	PBX Operators	Routine	Traffic Supt.	10- 1-53	11- 1-53	
	C	Toll Instructions	Routine	Traffic Supt.	10- 1-53	11- 1-53	
	2	Information Directory	Routine	Traffic Supt.		11- 1-53	
	3	Toll Route and Rates, Etc.	Routine	Traffic Supt.		11- 1-53	

SCHEDULE — OHIO CONVERSION

ITEM SEVEN—Work Involving Traffic and Commercial.

	ITEM	DESCRIPTION	PROJECT ESTIMATE	RESPON-SIBILITY	DATE TO START	DATE TO COMPLETE	% COMPL.
Commercial	1	Auto. Demonstration Unit	Routine	Commer'l	8- 1-53	11- 1-53	
	A	Programs to Clubs, Public Gatherings	Routine	Commer'l	8- 1-53	11- 1-53	
	B	Public Instruction	Routine	Commer'l	8- 1-53	11- 1-53	
	C	Employe Instruction	Routine	Commer'l	7- 1-53	11- 1-53	
	2	Advertising	Routine	Commer'l	8- 1-53	11- 1-53	
	A	Publicity, Conversion Program	Routine	Commer'l	8- 1-53	11- 1-53	
	B	Instruction, Dialing, Tones, Use of Directory	Routine	Commer'l Traffic	8- 1-53	11- 1-53	
	C	Methods of Calls, Fire, Police, Toll, Special Services	Routine	Commer'l Traffic	8- 1-53	11- 1-53	

and preparation of full plant records.

Item Six specifies the work of the Traffic Department in proper training, instructions and new procedures to be followed under the conversion.

The last item (*Item Seven*), involving Traffic and Commercial, with the assistance of Plant, specifies the proper presentation of the new methods of operation to the subscribers, the printing of the directory, and the necessary changes in billing.

By means of this schedule, management, all departments, subscribers, and commission and civic authorities can be kept advised at all times of the progress being made toward the complete conversion. As has been pointed out, a conversion of a Central Office to common battery or automatic operation takes the wholehearted cooperation of the entire personnel of any telephone company.

Block by block we have built the conversion, and when done, we will top it with the aim of the Independent telephone industry, customer satisfaction. — ***Reprinted from — "The Ohio Independent Story," published by the Ohio Independent Telephone Association.***

Industry Publicizes New Excise Rates

THE NATION'S TELEPHONE companies, their rate of business growth retarded during the economic slowdown of recent months, lost no time last month in advising their present and potential customers about lower communications costs resulting from the new excise rates which took effect April 1. Independent and Bell System companies immediately launched campaigns to advise the public and their employes of the new excise rates. The activities included some or all of the following in various areas — newspaper advertisements, news releases, bill inserts, bill overprints, radio and television spot announcements, business office posters, window displays, and cards in public telephone booths.

Congressional tax-writers have estimated that about $235,000,000 will be saved through the reduction on long-distance telephone and telegraph service, including leased wires, and $125,000,000 on local telephone service. For local and long-distance telephone service alone, the cutback is estimated at $325,000,000 a year. The American Telephone & Telegraph

ITEM SEVEN-A—Work Involving Traffic & Commercial (continued)

Commercial (continued)	D	Cutover Date News Stories of Conversion	Routine	Commer'l	8- 1-53	11- 1-53
	4	Directory Program	Routine	Commer'l	7- 1-53	10-15-53
	A	Auto. Numbers To Directory, Prepare Copy	Routine	Commer'l	7- 1-53	8- 1-53
	B	Verify Plant, Traffic, and Commercial Records	Routine	Commer'l	7- 1-53	8- 1-53
	C	Instructions Placed in Directory	Routine	Commer'l Traffic	7- 1-53	8- 1-53
	D	Directory Closing Date	Routine	Commer'l	9- 1-53	
	E	Copy to Printer	Routine	Commer'l	9- 1-53	
	F	Print Directory	Routine	Commer'l		10-10-53
	G	Deliver Directory To Subscriber	Routine	Commer'l	10-11-53	10-20-53
	5	Subscriber Billing				
	A	Correct Records				
	B	Bill New Rates				
	6	Commercial Employes Instruction on New Practices to Answer Subscriber Questions				

Co. reported that if the new tax rates had been in effect for all of 1953, the saving for the year would have averaged $7.60 per telephone.

Over 4000 Firms Use WU Private Wire Systems

MORE THAN 4000 American business firms are now using private wire telegraph systems leased from the Western Union Telegraph Co., the company reported last month in a roundup report of the field. The leased wire networks use 1,360,000 miles of telegraph circuits and link thousands of headquarters offices, branches, and plants nationwide for the direct, two-way exchange of volume communications.

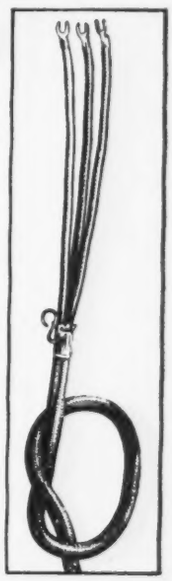
Western Union said sales of private wire systems have more than tripled in the past five years, and are now second only to telegraph message service as a revenue source. Revenues from the services were $19,245,000 last year, a new record, and are still growing rapidly, it was added. The excise tax reduction to 10 per cent on leased wires is expected to stimulate sales further.

Pointing to government and military agencies who also use Western Union systems, the company noted that the world's largest private wire network is the 130,000-circuit mile system, installed by Western Union for the US Air Force, linking more than 200 stations throughout the country. A 15,000-mile private wire system is being completed for the General Services Administration, to interconnect 51 major cities and handle about 40,000,000 words a year, it was added.

Industry's largest Western Union private wire system is the 38,000-mile General Electric Co. network, serving its offices and branches in 134 cities.

Largest Intrafax system, the leased facsimile method used by industry to speed intracompany communications automatically in picture form, is that of Pan American World Airways. The twin Pan-Am network serves 25 stations in New York and Miami.

LET CORD CLAIMS CONFUSE YOU



After all, there is only one way to sensibly evaluate telephone cord performance and that is to put them to the final test —*actual service!* So we invite you to "service-test" COMMERCIAL CORDS on your own installations and judge for yourself. We'll gladly furnish cords for such tests if you'll tell us about your requirements.

COMMERCIAL MAKES CORDS BETTER-TO LAST LONGER!

Write, Wire or Phone

COMMERCIAL CORD & SUPPLY CO., INC.

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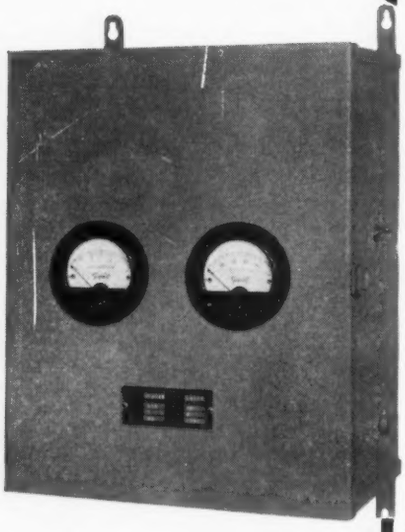
Phone: CLIFTON SPRINGS 189

CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS

Dependable Power

for Years-
and Years-
and Years-
of Service!



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ELECTROX
BATTERY ELIMINATORS
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See your Schauer Jobber.
Write for Bulletin 1465.

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SCHAUER
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4516 Alpine Ave. Cincinnati 36, Ohio

QUESTIONS and ANSWERS

Conducted by JAY G. MITCHELL

In this issue, Mr. Mitchell discusses — (A) Phantom Circuit on Common Battery Party Line; (B) Isolated Storage Battery, Charging and Maintenance; (C) Peak to Peak Voltage, and (D) Basic Traffic Estimate.

QUESTION:—*Enclosed is a sketch diagram. We have a* 10 *party Common Battery code ringing rural line from A to B — 4 miles on a straight road. Would it be possible and practical to install phantom coils on the Common Battery line so as to use it to pick up a grounded type one wire magneto farm line from B to C, a distance of* 3 *miles beyond the end of the Common Battery line. (The sketch map shows the single wire magneto line extending from the end of the Common Battery line at B for another three miles.)*

We know it will be noisy on the grounded line because of the high line but, disregarding the noise, would the above coil arrangement on a Common Battery line work and what is the circuit etc. (The map shows a 4 *wire* 13,000 *volt line paralleling the Common Battery line for its* 4 *miles on the opposite side of the road from the telephone line and the grounded magneto line on side roads not paralleled by the* 13,000 *volt supply circuit) Stamped Envelope not enclosed.*

ANSWER:—This suggestion, made to render improved telephone service to 7 rural subscribers (shown on the sketch map but not mentioned in the inquiry letter) is an indication of a progressive public relations policy on the part of the inquiring company. There are some factors that must be taken into consideration, however, before a final expression of opinion as to the feasibility of the proposed plan can be set out. First it will be necessary to know just what sort of "code ringing" is in use on the Common Battery line serving 10 stations. Is this metallic ringing or are the 10 parties on this line divided into two groups so that some are rung on the ring side of the circuit and some on the tip side, or are they all rung on the metallic circuit with no permanent ground connection on either side of the circuit. Another point that must be set out is the nature of the answering jack portion of the Common Battery multiparty line circuit.

In general it would be very inadvisable to attempt to superimpose a grounded magneto telephone circuit serving 7 stations on a Common Battery code ringing telephone circuit serving 10 stations. It would be much better to extend the grounded magneto telephone line circuit in toward the Central Office until it could be attached, by phantom coil or otherwise, to a metallic magneto line circuit which would carry the rural grounded line into the Central Office. It is noted that there are no spaces available for stringing additional wire on the main pole line. This can be secured by the use of twisted pair telephone cable containing its own supporting messenger which can be installed very easily on existing pole lines without taking up any of the pin space on the poles.

It would be very much better to plan on extending the isolated grounded telephone circuit serving 7 stations toward the Central Office in this way in the situation outlined in this inquiry. Please write in again if your inquiry has not been correctly interpreted.

QUESTION:—*We have contracted with a newly established factory located about five miles from our Central Office for a Common Battery Private Branch Exchange installation serving about twenty five local stations at present and with an ultimate*

There's no need to "write off" your single-channel ringdown carrier system when you convert to automatic operation. You can **convert** it economically to dial signaling with Lenkurt H1-D signaling equipment — **save** it for many more years of service!

Of course, automatic operation may bring extra traffic, require extra trunk facilities — but here again, Lenkurt offers your most economical solution! You can "stack" a Lenkurt Type 33-A carrier system on the same pair on which you are already operating your present single-channel carrier, Type 33-A will give you two **extra** channels (with dial signaling) to meet your increased requirements.

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probable forty or fifty stations and five Central Office trunk circuits. The contract calls for the subscriber to supply the necessary operating electric power. The current available is commercial 110 volt alternating current which is used throughout the factory. We are asked to draw up the specifications for the necessary equipment required to charge the 24 volt storage battery to be installed by us. Can you supply any data as to what would be the best and most reliable type of equipment for us to specify.

ANSWER:—It is assumed that the manufacturer of the Private Branch Equipment to be installed in this instance will supply the required data as to the style and ampere-hour capacity of the battery that will be required to meet the probable *present and ultimate demands* for this installation locally. With this data it is our recommendation that you contact some of the manufacturers of charging equipment for their recommendations to meet your problem. Some form of rectifier will be necessary and many complete outfits can be purchased which are almost automatic as to regulation and uninterrupted service. The essential that must be kept in mind is to assure continued reserve capacity with quiet lines, from the standpoint of telephone transmission, and assurance that the battery will not *become overdischarged*. A useful rule of thumb in such cases is the rule that may be used to determine the internal resistance of a storage cell. This rule is applicable when the storage cell is in prime condition, the electrolyte not depleted by evaporation or otherwise and the load supplied not greater than normal for the size of the battery. Under these conditions the rule of thumb which gives the internal resistance of the storage cell is as follows:

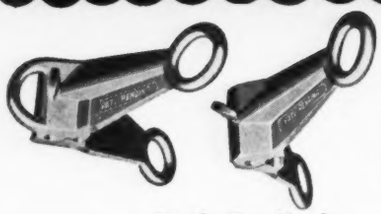
$$\text{Resistance} = \frac{4}{10\ R}$$

where the resistance is in ohms, and R is the normal ten hour charge rate for the cell. For illustration suppose that the battery required for the installation described in this inquiry consists of 12 cells with a normal ten hour charge rate of 16 amperes. Such a battery will have an internal resistance of about $\frac{4}{160}$ ohms multiplied by 12 (because the 12 cells are in series) or 0.3 ohm. To charge such a battery the rectifier must have an output voltage of 12 times 2.5 volts plus 4.8 volts or about 35 volts (34.8). It will be preferable and very economical, however, to arrange this installation, if possible, so that the battery is floated in parallel with the rectifier. Such an installation should be periodically and thoroughly checked and the battery especially should be thoroughly inspected.

QUESTION:—*What is meant by the expression "Peak to Peak Volts" and what is its significance?*

ANSWER:—The characteristics of alternating current may be expressed with reference to several different results producible from their presence in a given circuit. The most common scale for defining the voltage of alternating current is the RMS value (Root Mean Square) of the instantaneous values through which the

How to Solve Your Cable Spinning Problems the Easy Way



Platform Clamps
Support splicer's platform from aerial cable —spun or otherwise. Won't slide on grade or damage cable. Bronze alloy.

Handline Block,
specially designed for spun cable, may be used on cable with any other kind of support. Clamps on strand. Won't slip on grade or damage cable. No wrench is needed. Bronze alloy.

Single Eye Hooks
...for four supporting adjustable ropes of a splicer's platform. Cadmium-plated steel.

Double Eye Hooks
make splicer's platform readily adjustable ...by threading supporting ropes through double eye. Cadmium-plated steel.

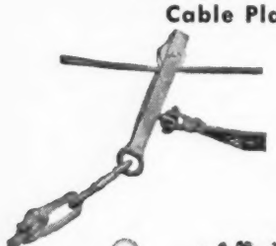
Lashing Wire Clamp
designed by Neale, holds spinning wire with positive action clamp when terminating at pole. Also keeps slack from running back in cable repairs. Bronze alloy with cadmium plated screw.

Soap Can & Brush
keeps pressure testing soap or paint in excellent condition. Cast aluminum for light weight. Tight-fitting cover serves as handle for brush. Container equipped with spring belt clip.

LITTLE GIANT Slack Pullers

Here's a combination of great strength and very simple operation...to make difficult operations easy. Furnished with either slip handle (left) or ratchet (right). Moving parts cadmium plated.

Cable Placing Ring Guide Roller
offers means of pulling cable in and takes down pull on tow line to truck. Cadmium plated steel with bronze bushing.



Cable Placing Shoe
is used ahead of spinner to raise cable from reel to strand in placing and spinning cable. Also used stationary at pole when placing with rings.

Steel Placing Rings
...for light cable. Slip rings onto cable at pole and attach to pulling line. Rings distribute themselves every five feet along span. Sets of 20, including 110 feet of rope attached.

Bronze Cable Placing Ring.
Roller design eliminates sheath damage of all sizes of cable. Cast bronze body and bronze rollers.

CABLE SPINNING MANUAL
gives complete details on operation of Neale Cable Spinner with easy-to-follow service and maintenance instructions.

CABLE SPINNING
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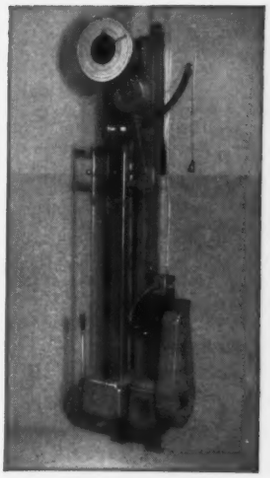
voltage passes. This has been called the "Effective" voltage because it is a factor involved in the determination of the *power* being expended. It is numerically equal to the square root of the sum of the squares of the instantaneous values through which the alternating voltage is impressed. The *maximum* value, however, of the alternating voltage is also very important. For illustration it is the maximum instantaneous value rather than the RMS value of the voltage which results in strain on insulation. The "Peak to Peak" voltage is the maximum instantaneous difference between a positive value and an immediately preceding or following negative value. This is important in conditions when the power being expended is, perhaps, less important.

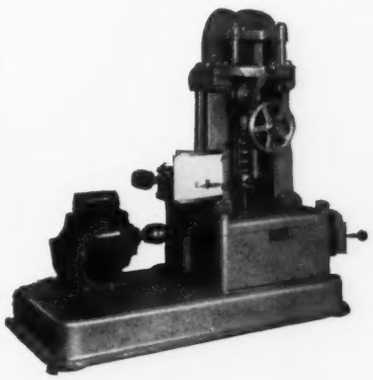
QUESTION:—*We have been making some amateurish studies of the traffic in our Central Office and now we ask for suggestions as to how to interpret the data that we have. The purpose of this effort is to develop a basis for the possible purchase of new equipment but it is our intention, regardless of that object, to make some records of the traffic that we are now handling. Can you give us any rules that will be of help?*

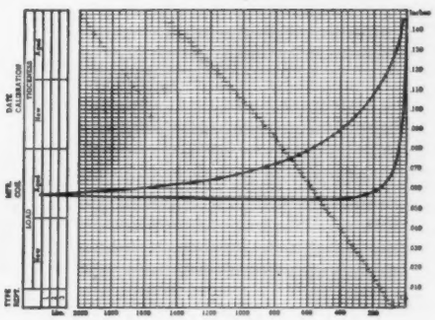
ANSWER:—The traffic that must be handled in the telephone office is one of the very important items of management that is often overlooked entirely. Any of the manufacturers of Central Office Equipment will be glad, for obvious reasons, to make traffic studies to be used as a basis for submitting their quotations on the equipment that they believe will be required to serve the prospective purchaser's traffic load. However this is a very interesting line of thought and this company is to be commended in its effort to evaluate its requirements independently.

First it will be necessary to determine the average holding time per call. That is done by timing a representative number of actual calls starting the stop watch when the call is answered and stopping it when the disconnect signal is received. It is desirable to time as many calls for this factor as possible and the samples should be spread over the day so that a fair picture may be obtained. This average holding time ordinarly is not less than 2 minutes nor more than about 3.5 minutes. It is very important because the load that may be carried by telephone Central Office



With labor and maintenance costs much higher today than some years ago, it is natural for telephone companies to insist on installing drop wire that will give long service. Dependability in Lowell's complete line of Telephone Wires is assured by a technical staff using many physical tests to determine the effect of heat, aging, tensile strength, compression, cold, acids, oils, moisture and abrasion. Tensile test machine at right which tests for adhesion enables us to guarantee that the adhesion bond between the insulation and conductor is stronger than the conductor itself.





Compression testing is essential in high grade insulated telephone wires. All Lowell parallel neoprene jacketed drop wire is tested in our laboratory to withstand pressure of 2000 lbs. or more before the insulation jackets are crushed. Since resistance to compression determines the quality of the adhesion these tests prove that Lowell Drop Wire will stand the crushing action of the P Clamp without cracking of the insulation or jacket, thus insuring dependability and long life in service.

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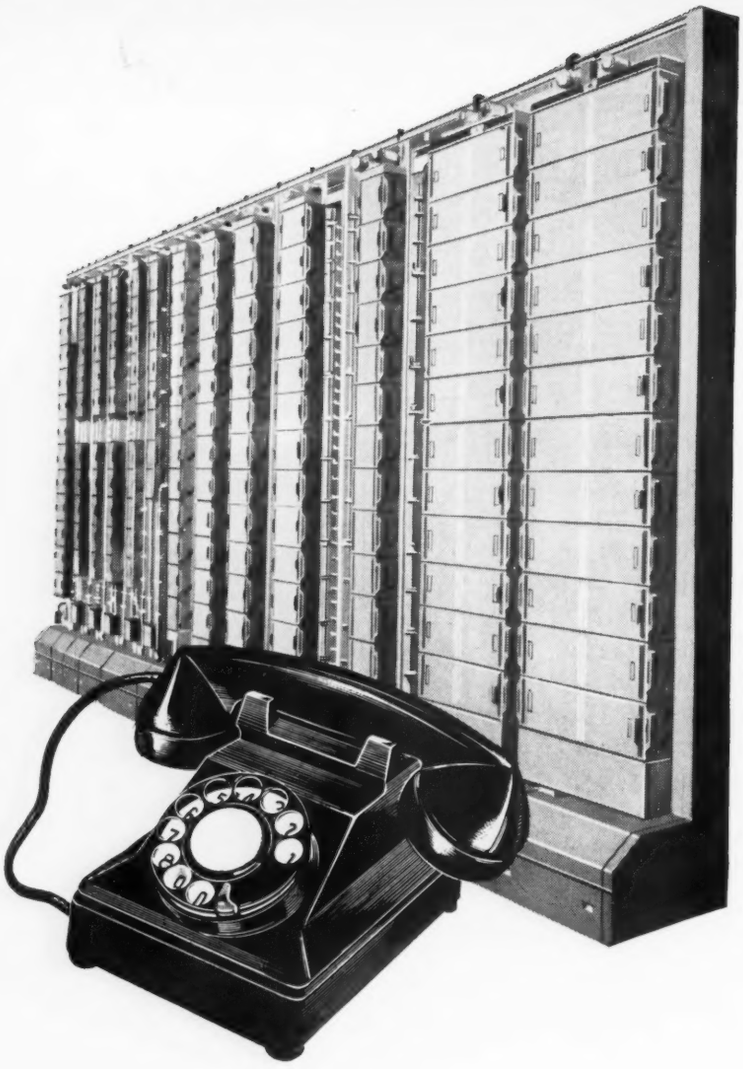
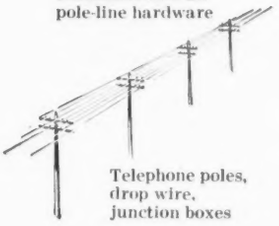


Microwave radio relay system

Switchboards, test boards

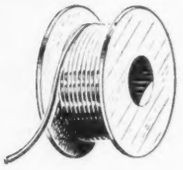
Insulators and all pole-line hardware

Telephone batteries and standby power supplies



Telephone poles, drop wire, junction boxes

Teleprinters



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Equipment is much heavier and requires more connecting equipment when the average holding time is long than it would if the average holding time were shorter.

Once the average holding time is determined the following formula may be used to determine the total number of calls in existence simultaneously, in other words the number connecting circuits that will be required for any number of *busy hour calls*. The rule of thumb formula is:

$$\text{Number of connecting circuits is } \frac{TC + 2.7\sqrt{(1\text{-}T)}}{}$$

where T is the average holding time *in fraction of an hour*, C is the total number of calls handled during the busy hour. It is to be noted that the figure obtained by the application of this formula must be *increased* by a factor dependent upon the number of connecting circuits in the groups to which the calls have access. If desired this subject will be amplified in later issues. —THE END

Ill. Central Tel. Co. Makes Personnel Changes

CARLES H. ALSUP has been appointed manager of the Clinton District of the Illinois Central Telephone Co., according to an announcement made by R. C. Ross, general manager of the company. He succeeds James K. Sanders, who has been transferred to the general plant department as maintenance supervisor in the company's plant operations.

The Clinton District is comprised of the telephone exchanges of Clinton, Farmer City, Kenney, Mansfield, Maroa, Weldon and Waynesville.

Mr. Sanders will continue to make his residence in Clinton, although his work will take him into the 29 exchanges of the company. He succeeds H. J. Kleemann, who has been receiving his plant training in the general plant department, and who is being transferred to Chillicothe as plant supervisor of that district, which includes eight exchanges and is the company's largest district.

Spencer C. Herzberger of Illiopolis has been appointed district manager of the Illinois Central Telephone Co.'s Sullivan District. He succeeds Mr. Alsup. Mr. Herzberger has been supervisor of the plant operations of the company at the Illiopolis, Macon and Niantic exchanges.

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A single relay in your Micro Wave System stops functioning . . . what happens until service is restored? That break may be but a matter of seconds . . . but think of the amount of equipment you must maintain . . . to minimize such interruptions!

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AND WHAT'S MORE . . . Micro-Power does it WITHOUT costly investment in standby electric plants, battery banks, rectifiers and motor generator sets.

IN NEW installations, Micro-Power can save up to $300 per mile! INVESTIGATE MICRO-POWER. Write "U.S." for complete details . . . or ask your supplier of Communication equipment . . . INSIST on U.S. MICRO-POWER in your next micro wave installation.

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Members of this Ohio Convention group are (l. to r.): GUSTAV HIRSCH, Columbus; L. L. RUGGLES, Chicago; and P. L. PICOT, Chicago.

Ohio Independents Elect R. R. Waltz President

MEETING at the Deshler-Hilton Hotel, Columbus, 500 members of the Ohio Independent Telephone Association recently participated in the organization's 59th annual convention. Dedicated to the theme of "Keeping Pace With Progress," the convention program, exhibits, and special features proved that Ohio Independents are using every available facility to bring the best in communications to the Buckeye State.

R. R. Waltz, of Delta, was elected president of the Ohio group. Other officers elected were: Ralph F. Mateer, Warren, first vice president; H. F. Clapper, Greenville, second vice president; and Daniel W. De Hayes, Columbus, secretary-treasurer.

Directors of the Ohio association are: Marvin A. Byrd, Mansfield; Weldon W. Case, Hudson; H. F. Clapper, Greenville; R. N. Cole, Portsmouth, Robert D. Gott, Wellington; Herman E. Hageman, Lorain; William C. Henry, Bellevue; Col. Gustav Hirsch, Columbus; James I. Hunt, Middlefield; Rolland S. Jones, Athens; Ralph F. Mateer, Warren; Col. David McKell, Chillicothe; J. D. Park, Kenton; George B. Quatman, Lima; J. Warren Safford, Troy, Yetter Snyder, Chardon; R. R. Waltz, Delta; and C. E. Williams, Marion.

Speakers at the general convention sessions were: Ohio Association President, R. R. Waltz; Robert L. Moulton, chairman of the Ohio Public Utilities Commission; Warren B. Clay, Hutchinson, Minn., president of the United States Independent Telephone Association; Roscoe R. Walcutt, attorney at law, Columbus; Ohio Association Secretary, Daniel W. De Hayes; Weldon W. Case, Hudson; R. E. Horton, Columbus; L. L. Ruggles, Chicago; and Dr. Tennyson Guyer, Findlay.

Speakers at the Commercial Conference, presided over by Joseph R. Yeager, Portsmouth, were: J. M. Woodrow, and L. E. Frailey, both of Columbus.

Galen P. Klepinger, Troy, presided at the Plant Equipment Conference and presented: Frank T. Quatman, Lima; V. G. Ritter, Portsmouth; Paul E. Murphy, Lima; Herbert Porter, Jackson; and William Reichel, Portsmouth.

Robert E. Coffman, Marion, presided at the Traffic Conference. Traffic speakers were: Paul Eastey, Lima and Miss Mary Quinn, Cleveland.

"Keeping Pace With Progress"

USITA President Warren B. Clay told the Ohio conventioneers that the future of the telephone business was "never so bright."

"Opportunities and almost unlimited horizons for growth and expansion are still there for those who wish to seek them in the true American fashion," he said. "From all sections of the nation reports are coming in of improvement programs and dial conversion projects among the Independent companies. These activities in themselves are bright harbingers of the future."

Three telephone executives chat at Ohio Convention Hospitality Party (l. to r.): J. R. SAFFORD, president, Troy-Tripp Telephone Co.; DONALD POWER, president, General Telephone System; and RICHARD R. WALTZ, president, Delta Home Telephone Co. and the Ohio Independent Telephone Association.

Discussing revenues, Mr. Clay said public utility commissions are recognizing the industry's need for increased revenues to meet its rising costs, and to establish its business on a more solid financial foundation, so that industry members can attract the necessary improvement funds.

"Many of these same commissions," he said, "are doing a splendid job of cutting down on the usual time lag between rate case hearing and final decision, recognizing that our loss of additional revenue during this lag period can never be retained."

He pointed out that, "we — as well as the financing people and the public utility commissions — have learned the most important fact of all. It is this: The telephone subscriber — the man who pays the bills — is ordinarily not opposed to paying a fair price for telephone service, PROVIDED that this service is modern and efficient."

"There are other factors," Mr. Clay stated, "which make me highly enthusiastic about the future of our industry. We have made great technological advances in the field of communications, and other important developments lie just ahead. Our population is more telephone-conscious than ever before. The use of telephones as a means of communications is steadily increasing."

Discussing basic problems of today, Mr. Clay said — "We have the basic problem of salesmanship within our industry — and that problem was never more important than it is today. We have the problem of service. We have the problem of 'missing links.' And we have the continuing problem of telephone income, with its related problem of constantly convincing both the public regulatory bodies and our subscribers that telephone income must remain at a high level if our standard of progress is to continue."

Mr. Clay pointed out that, "all these problems can be wrapped into one neat bundle labeled 'public relations.' Yes, we need public relations in our industry more than ever before, and that's why it's so encouraging to see what you people in Ohio are doing! We badly need the salesmanship segment of public relations. You know what miracles good salesmanship can achieve. Why, I know of a man who sold his wife

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Realize those *extra* dollars by investing in York-Hoover Body Equipment. Model 4986 Service Body, for example, is providing outstanding every-day service records in all sections of the country. Built in stability assures an absence of troublesome detail repairs, so costly in terms of time and money.

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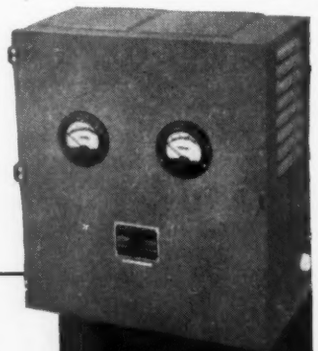
Excellence in Electronics



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Specify Raytheon RectiChargeRs and RectiFilteRs for completely dependable Telephone service. Your supplier offers a complete line for all requirements. Ask him for details or write direct.

on the idea that she would look fat in a mink coat. Gentlemen, that is salesmanship.

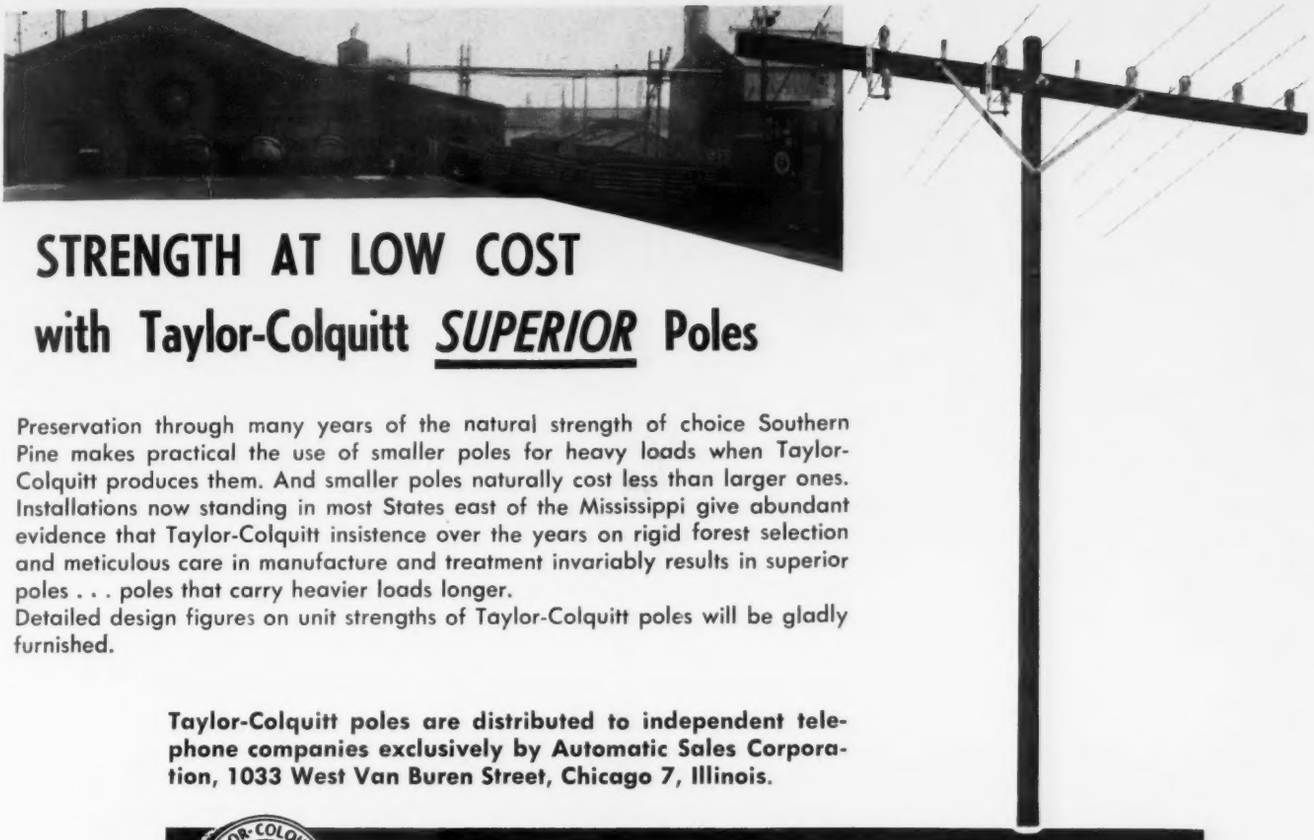
"You might ask: Who do we have to sell when our telephone subscribers must get their service from us anyway? Well, we have to sell our long distance service. We have to sell people on greater use of extension phones. We have to convince our right-of-way companies, such as the electrical companies, the oil line companies and others, that their communications systems should be maintained and operated by the telephone industry. And, we have to sell ourselves to our subscribers. Unless our subscribers are completely sold on us, we may find them speaking out against us when we seek a justified adjustment in rates.

"We have another problem — the problem of 'missing links' within our industry. These are the telephone companies whose service is below par. Our goal must be the finest telephone service for ALL our citizens. There must be no 'second class' citizens as far as telephone service is concerned."

"All of these problems," he stated, "in one way or another — are related to our major problem — of keeping telephone company service and revenue at a high level, so our communications job can be done. The key is good service. As I said earlier, customers will pay for good service. And good service, we have learned through experience, puts the customer in a friendly frame of mind, ready to judge us more kindly on our requests for rate adjustments.

"There is another segment of public relations. That is keeping the public — and the regulatory commission — familiarized with what you are doing. You'll find that in most cases, the informed subscriber — or commission — tends to be on your side. But you won't get the same cooperation from the uninformed!"

Mr. Clay concluded that "The Independent telephone industry has made terrific progress, especially since World War II. Our future is bright with promise — a future where service will be uniformly good, where rates will be uniformly adequate. But the future for us will be whatever we choose to make it. If we work, if we plan and if we fight — it can be good. As presi-



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with Taylor-Colquitt *SUPERIOR* Poles

Preservation through many years of the natural strength of choice Southern Pine makes practical the use of smaller poles for heavy loads when Taylor-Colquitt produces them. And smaller poles naturally cost less than larger ones. Installations now standing in most States east of the Mississippi give abundant evidence that Taylor-Colquitt insistence over the years on rigid forest selection and meticulous care in manufacture and treatment invariably results in superior poles . . . poles that carry heavier loads longer.
Detailed design figures on unit strengths of Taylor-Colquitt poles will be gladly furnished.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois.

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SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

Do you know these facts about

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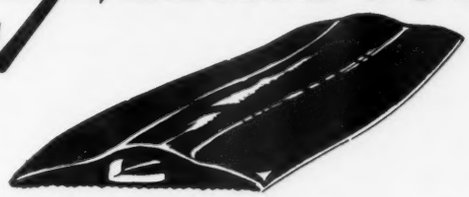

It's the new rubber floor duct that solves over-floor wiring problems quickly and effectively, with adequate protection from sweepers, mops and equipment on casters. Installation is easy and permanent. You just fasten Flexiduct in place with its own special cement. There's no drilling or necessity to use screws and fasteners. Flexiducts' flexibility allows it to adhere evenly and securely to all types of floor surfaces and it is adaptable for installations ranging from 2 conductors to 25 pair switchboard cables. Write for complete information regarding Flexiduct and your wiring problem today.

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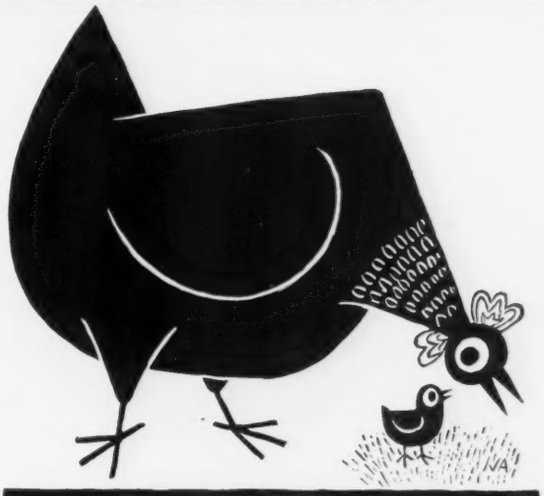

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You can rest assured that your directory, whatever its size, will be carefully printed at

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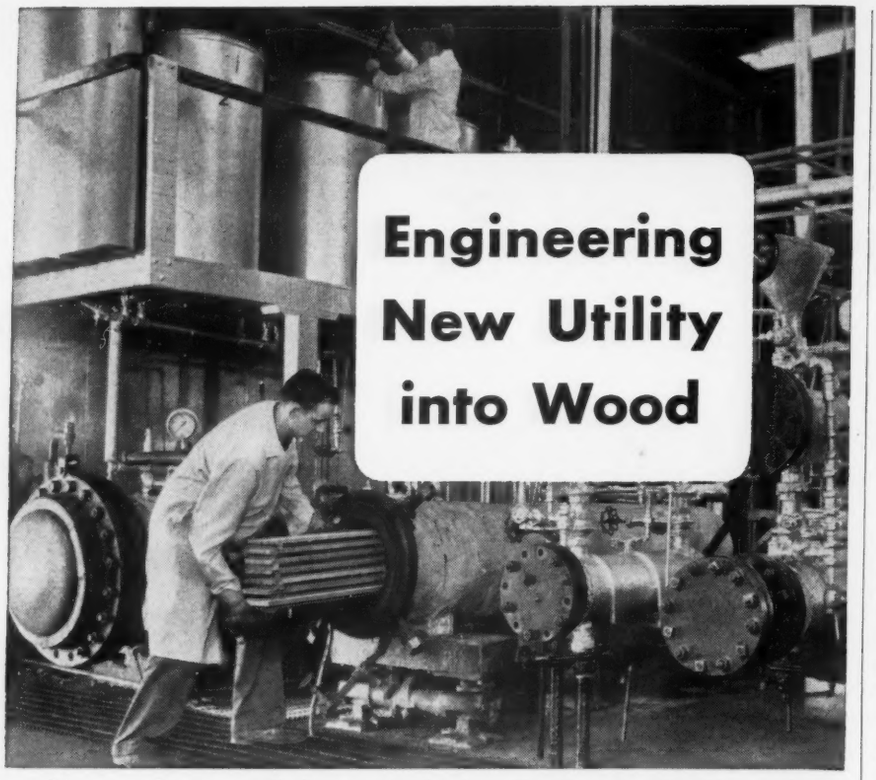

These wood-treating cylinders vary in size from 2" x 12" to 4' x 20'. They make possible detailed studies of wood ranging from test-tube quantities to semi-commercial quantities.

at the Koppers Technical Laboratory

• Koppers Poles and other pressure-treated products have proved their worth by giving customers long and satisfactory service. But Koppers Company doesn't rest on its laurels. At its Technical Laboratory in Orrville, Ohio, Koppers works to improve its products so that they will do an even better job for you.

Here, in one of the most complete wood-treating laboratories in the world, Koppers technicians conduct exhaustive tests on the prevention of wood deterioration. They have the most modern equipment at their disposal.

For example, a man-made "tropical jungle" accelerates the rate of decay in wood and thus provides samplings for study. Impact-testing machines determine the loss of strength caused by the various agents that attack wood. There is a battery of pressure cylinders for impregnating wood with various preservatives and for testing all known treating procedures.

This continuing program of research is another way in which Koppers is hard at work to make wood serve you better and more economically.

SEND US YOUR PROBLEMS!

If you have any problems dealing with wood, submit them to us. Our technicians will then recommend the proper preservative treatment to meet your needs. If you wish, you can send us a sample of wood that has failed. We will perform an "autopsy" and tell you *why* it failed and how to prevent future trouble.

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dent of your national association, I want to say that if all of us — working through our national and state associations — and adopting programs such as you have adopted here in Ohio — hew carefully to the line and fight for the future of our industry, that future can become just as bright for us as a new-minted penny."

Carrier Equipment

DISCUSSING "Considerations of Carrier Equipment," Frank T. Quatman, Lima, referred to three terms: channel, terminal and systems.

"A channel," he said, "is a one or two way signalling and talking path or circuit. A terminal is the mechanical and electrical assembly required at the origin and destination of each channel. Each channel must necessarily consist of at least two terminals. The terminals and channels in a group constitute a carrier system. We may have several systems existing between two exchanges, each system made up of so many channels per system. Thus, we refer to terminals, channels and systems. A one, two or three channel system is sometimes referred to as a one, two or three story system."

Stating that the basic element of a carrier system is the filter, Mr. Quatman said, "we can best think of a filter as a 'rejection device,' for that is the function of a filter."

"A filter," he said, "is an inert device made up of combinations of condensers and inductors which capacitance and inductance can be arranged in a pattern to provide the desired requirements in an AC circuit."

"As you know," he said, " it is a combination of filters that permits the coupling of a carrier system to a physical circuit. It is the low pass filter that must be understood when trouble shooting or otherwise working on physical circuits where carrier systems are employed."

"It is important," Mr. Quatman said, "for us to note and emphasize to our maintenance people that the construction of a low pass filter is such as to permit direct current continuity. By the same token, the construction of the high pass filter is such as to block direct current. This, of course, is accomplished by condensers. Through the low pass filter the condensers are across the line so

Students from Liberia, Africa, learn Strowger switch adjustment at Chicago. Automatic's chief instructor gives a helpful tip.

International Automatic Electric **trains your men**

to serve you better

Want freedom from maintenance worries? Specialized training for your men is the answer! Such training—on the job or in our school—is yours for the asking when you buy from International Automatic Electric.

Your men learn what each switch in your Strowger Automatic exchange is for, and how it works. They learn how to make your dials, carrier systems, toll ticketers, relays, and ringing machines give the best service and what to do if attention is needed. They learn how to serve you better!

Customers all over the world take advantage of this valuable instruction. They also use other helpful services provided by International Automatic Electric, including engineering, manufacturing, and installation. They know these services mean *investment security*. Ask for full details today.

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as to break our AC. The induction coils are in series in the line. These coils represent a DC resistance of 10 to 20 ohms. It is to be remembered that when a carrier system is inserted on a physical pair, the filters have added from 40 to 80 ohms to the loop resistance. The test board man will also note a good condenser kick on his meter as a result of the capacity of the condensers in the filter.

"We can appreciate that if the wire pair involved in this carrier system is transposed with another wire pair in order to derive a phantom circuit or a composite group, the insertion of the filters in one of the side circuits would create an unbalance in the composite group. To maintain the phantom group balance we must insert in the other side circuit a unit that will stimulate the filter insertion. This unit is called a line filter balance and provides essentially the same DC resistance and AC impedance as the low pass-filters. . . . We believe it to be very important for these conditions to be pointed out to the maintenance people because we have experienced delays in restoring circuits to service due to a misunderstanding of what and where the carrier is in respect to the physical circuits. The carrier is not infallible. It is possible for the carrier to cause trouble on the physical circuits. For example, lightning passing the protection with enough force to break down the filter condensers."

Toll Traffic Routes

PAUL A. EASTEY, Lima, presented the following reasons for definite authorized routes:

(a) To control the speed of service on calls to given points.

(b) To control transmission on these calls.

(c) To conserve operator and circuit holding time.

(d) To keep loads balanced over all routes thereby avoiding excessive NC conditions over some paths and ideal conditions over others.

(e) To enable the Traffic Dept. to make accurate studies or checks of the use of circuits to determine the number of circuits required to handle the traffic without encountering excessive NC conditions.

(f) To avoid complaints of service delays due to inability to reach the terminating point without making several attempts.

Mr. Eastey advised that where two or more Independent companies are involved in the building of a toll route between two Independent points there should in all cases be close co-operation on the part of the engineers and construction forces of all companies involved to the end that initially a good grade of circuit is provided whether it be of the physical, phantom or carrier type that makes up the group.

"In conjunction with the Traffic Departments," he said, "circuit requirements should be worked out in advance and provision made in the budget for funds to build the initial toll circuit group to insure that it is ample to handle the traffic and is in the best interests of public relations.

"Once a toll route is provided for and built, it then becomes necessary to see that it is maintained at the proper standard of efficiency at all times. This includes periodic checks by the Traffic Department as to the adequacy of the circuit group to move the traffic in a reasonably satisfactory manner during busy hours. These checks of circuit usage can be made on ringdown circuits by a two minute use of facilities count by hours of a certain group or groups and recorded on a regular "Use of Facilities" form. On dial circuit or trunk groups a 'pen register' is perhaps the better way to get the information. Summaries of these records of busy hour usage when read into the proper table will show what the circuit requirements are."

Toll Separations

TRAFFIC Superintendent R. E. Coffman, of the General Telephone Co. of Ohio, Marion, brought the traffic conference up-to-date on "The Traffic Approach To Toll Separations Studies."

Explaining why such studies are undertaken, Mr. Coffman stated the studies are designed to reveal whether or not revenues being received from toll compensation are sufficient to cover the company's cost of handling toll calls; and if not, to provide the necessary data to enter into negotiations with the Bell Company to secure such upward adjustment in the toll commissions as are proven to be required by the study."

"It is essential," he said, "that

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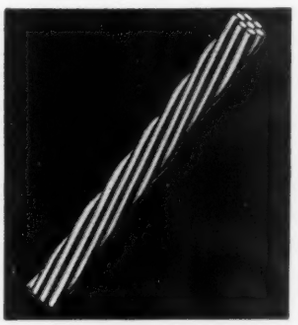

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The superior tensile properties inherent in steel are used to full advantage in *Crapo* Galvanized Strand. The tightly adherent zinc coating applied by the *Crapo* Galvanizing Process provides lasting protection against corrosion, prolongs the life of the strand. Controlled ductility makes *Crapo* Strand easy to work and to serve. Low first cost and low yearly cost result in important economies.

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the aristocrat of stationary batteries

Many Planté batteries are still in active full-float service after twenty, thirty, even forty years! That's because Planté plates are heavy, solid sheets of pure lead. In these batteries Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Cut maintenance, charging and replacement costs to a minimum. Choose Planté.

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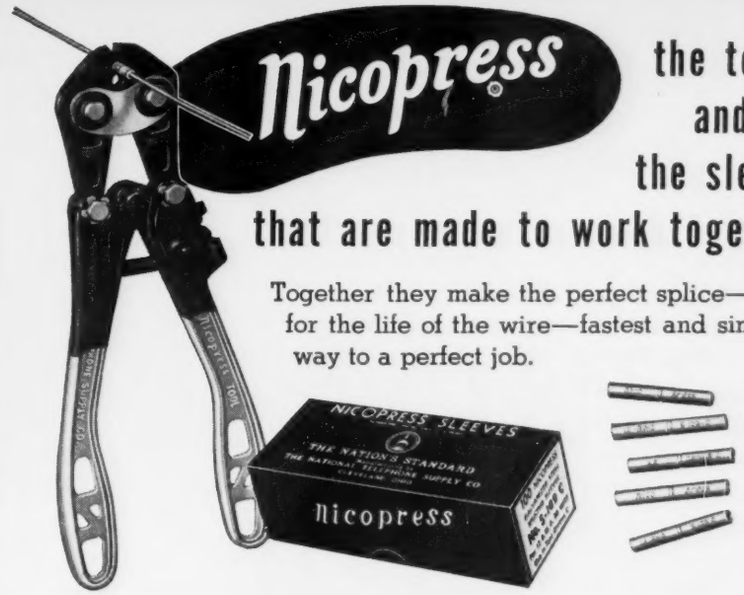
GOULD-NATIONAL BATTERIES INC.



the tool and the sleeve that are made to work together

Together they make the perfect splice—good for the life of the wire—fastest and simplest way to a perfect job.

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is pre-tested to operating company requirements

Before a single inch of Kennecott cable leaves the mill, it is tested for Dielectric Strength, Insulation Resistance, Conductor Resistance, Capacitance and Fixed Dimensions. Such care in manufacture is your warranty of efficient, trouble-free performance in the field. Specify "Kennecott"—distributed by Stromberg-Carlson.

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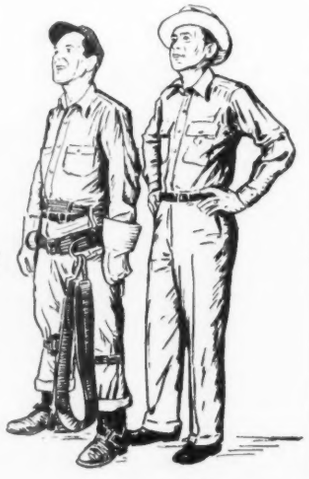
AND MANY OTHER ELECTRONIC PRODUCTS FOR OUR ARMED FORCES

Linemen call this hoist a "HONEY"

Designed especially for line work, this NEW CHANCE HOIST has all the features linemen want!

Here's what makes this ONE-TON HOIST the linemen's favorite:

- Well-balanced, easy-to-grip handle that operates from either side to avoid obstructions.
- "Free-wheeling" for ease in hooking to load, with an automatic locking control to prevent accidental dropping of load.
- Both half link and full link take-up for accuracy and speed.
- Easy working swivel hooks on both the chain and the hoist housing. Safety latch hooks, if desired, at slight additional cost.
- All working joints fitted with permanently lubricated oilite bearings.
- All working parts fully enclosed in the housing to prevent injury to fingers.



Here's the tool your linemen asked for in a nationwide field survey—a tool developed by Chance engineers, who *know* line work. It has all the good features linemen said they wanted in a hoist. It's a strong, fast-operating, lightweight tool (12 pounds) with a flexible steel load chain that won't kink, bind or uncouple. Controls can be worked without removing gloves. It's rated to lift a one-ton load and it's tested to 3000 pounds. Give your lineman the extra help and safety that the Chance Hoist can provide.

CT54-9A

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CENTRALIA, MISSOURI • SAN FRANCISCO, CALIFORNIA

ABC INDUSTRIES

each company assure itself that toll compensation is adequate to cover operating cost and provide a fair return on the investment, otherwise, the insufficiencies in the toll revenues will inevitably be reflected in the local service rates, thereby causing all subscribers to pay a portion of this toll revenue insufficiency."

Mr. Coffman recommended that "any company entering into a Toll Separations Study confer with their Bell Company who will be more than willing to provide assistance and counsel which will be invaluable in obtaining the final result."

In closing, he emphasized the following three points:

(1) The importance of the peg count in toll separations cannot be over-emphasized and to obtain accurate peg counts, it requires employes with a complete understanding of the procedures and dependable meters to record the various call volumes; the word employe is intended to cover the operators preparing toll tickets and pegging local calls as well as the person or persons supervising.

(2) An invaluable record is that of the daily toll calls handled and separated as to Bell, American Telephone and Telegraph and Independent. Many companies keep such a record as a matter of routine because of the many uses for such information in circuit and equipment engineering. The establishment of such a record is highly recommended whether or not you are considering a Toll Separations Study.

(3) A thorough understanding of the office and its operation is essential to that person or persons directing the individual holding time observations, peg counts and associated data as well as to other departments involved in the study.

New Catalog Available

TIMING AND GEAR MOTORS: *Gleason-Avery, Inc., Auburn, N. Y.*, manufacturer of instrument, timing and gear motors, has announced a new catalog of products and services.

The catalog includes specifications and illustrations of all Gleason-Avery synchronous and non-synchronous instrument motors, series "500" gear reduction motors and temperature controls. The catalog may be had by writing *Gleason-Avery, Inc.*, 45 *Aurelius Ave., Auburn, N. Y.*

THE *SWING* IS DEFINITELY TO WB® TELECORD®...

Whitney Blake TELECORD is being specified by more and more independent telephone companies for their telephone cord requirements.

TELECORD with its sturdy neoprene jacket is the logical replacement for outdated textile covered cords.

TELECORD's tough neoprene jacket lasts longer and never frays. It is highly resistant to abrasion, perspiration, humidity, oil and grease.

When you purchase telephones, specify that they be equipped with TELECORD. On replacements use TELECORD for economy and service.

Always order TELECORD by name. Your independent telephone supply house can fill your orders promptly. Cords to fit all standard telephones are stocked.

WELL BUILT WIRES SINCE 1899

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WHITNEY BLAKE COMPANY

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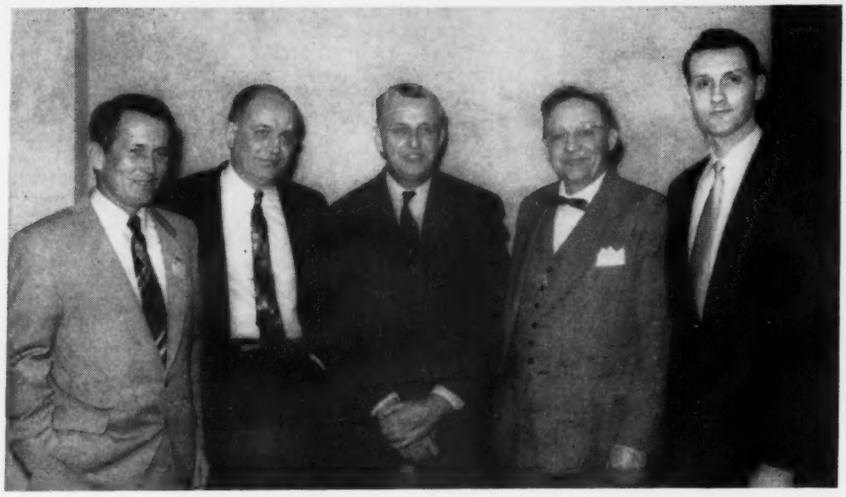

New officers of the Kentucky Independent Telephone Association (l. to r.): G. B. FOSCUE, JR., president; vice presidents HOMER J. WRIGHT, D. H. LLOYD, and D. B. CORMAN; and J. A. REITZE, secretary-treasurer.

G. B. Foscue, Jr., Elected Kentucky Assoc. President

MEETING at the Phoenix Hotel, Lexington, members of the Kentucky Independent Telephone Association elected G. B. Foscue, Jr., Florence, president of the Association. Other officers elected during the annual convention were: Homer J. Wright, Elizabethtown, vice president; D. H. Lloyd, Lexington, vice president; D. B. Corman, Augusta, vice president; and J. A. Reitze, Elizabethtown, secretary-treasurer.

Speakers at the one-day meeting were: Warren B. Clay, Hutchinson, Minn., president of the United States Independent Telephone Association; Homer J. Barter, Kentucky general manager of the Southern Bell Telephone and Telegraph Co.; Harry J. Huether, Jr., Kentucky association president; Eugene E. Druley, general traffic manager, Cincinnati & Suburban Bell Telephone Co.; and Frank C. Laver, assistant equipment manager, Peninsular Telephone Co., Tampa, Fla.

"Turn Up Your Volume"

PRESIDENT HUETHER told the convention audience that the period ahead "can be fruitful or disastrous for our industry."

"I do not mean to be pessimistic," he said, "in fact I am optimistic for the future, but some readjustment is necessary. During the post war years we all have been expanding at a very fast rate, all this during an inflationary period. Now we are confronted with an era in which business in general is turning from a buyer's market to a seller's market. So we must of necessity consider our expenditures,

(Please Turn To Page 86)

210 Independents registered at the 1954 convention of the Kentucky Independent Telephone Association. Above photo shows (l. to r.): H. J. HUETHER, JR., president of Kentucky association; EUGENE DRULEY, general traffic manager, Cincinnati & Suburban Bell Telephone Co.; and FRANK LAVER, Penninsular Telephone Co., Tampa, Fla.

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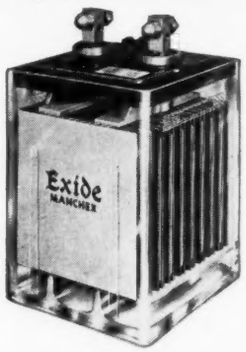
Exide-Manchex
telephone batteries



assure positive operation

For Central Office and Private Branch Exchange Equipment

This is proven daily in exchanges of every size . . . for over 60 years Exide Batteries have been serving the Telephone Industry . . . the Manchester positive plate with its exclusive button type construction provides exceptionally long life . . . latest developments on molded glass jars permit compact space saving installation . . . heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates . . . microporous rubber along with slotted plastic separators, are impervious to chemical and electrical reactions . . . plastic spacers assure plate alignment . . . for assured dependability, long life and low-cost maintenance use Exide Manchex.

The Electric Storage Battery Co.
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1888 . . . Dependable Batteries for 66 Years . . . 1954

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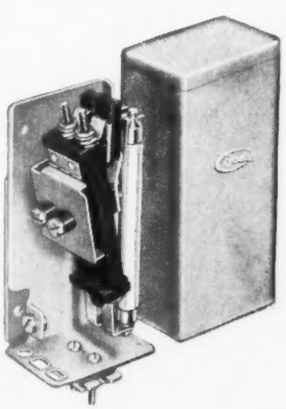
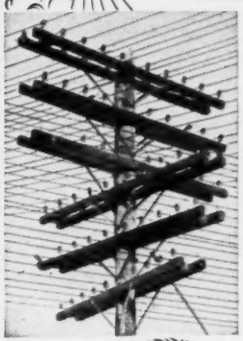
outdoor sub-station protector

A very rugged Protector, assembled on a bracket of heavy steel—instead of porcelain—to take rough handling and subscriber abuse without danger of breakage. Other outstanding features:



1. Uses a Cook Standard Type H Protector unit with molded bakelite base for high resistance to electrical and physical shocks.
2. Protector unit contains both primary and secondary arresters. The secondary arrester provides a path to ground for lightning should the fuses be blown.
3. Mountings contain heavy studs for connecting drop wires and ground.
4. Equipped with heavy zinc weatherproof hood, and bracket for mounting on post, wall, etc.
5. All structural parts, including hood and bracket, are grounded.

"dependable" *means both the trade-mark & the guarantee of cross-arms by* American Cross-Arm Inc.



The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

RAYTHEON RectiChargeR*

maintains constant voltage output over the complete load range!

Maintains the close voltage limits required by telephone systems and reduces such common difficulties as incorrect ringing, line noises and lamp failures. The constant potential method of charging prevents battery gassing and water loss. A smaller maintenance crew can handle a greater number of installations.

A small storage battery floated across the terminals of a Raytheon RectiChargeR for emergency and peak period use is kept at constant cell voltage so that it never becomes overcharged or undercharged . . . thus prolonging the life of the battery.

The frequent use of the Raytheon RectiChargeR in unattended exchanges is ample proof of its dependability. Available from 1.0 to 100.0 amperes with either 24 or 48 volt output.

*Reg. U.S. Pat. Off.

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High Fidelity Radios and Radio-Phonographs

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Electronic Carillons for Churches and Public Buildings

Sound and Public Address Systems

"Panoramic Vision" Television Receivers

AND MANY OTHER ELECTRONIC PRODUCTS FOR OUR ARMED FORCES

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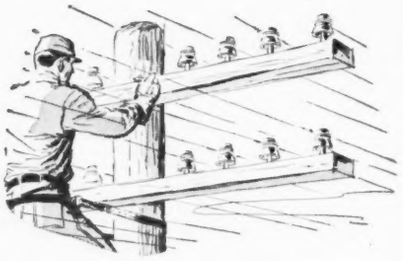

Long service, top performance—that's what you get when you buy Armstrong's Glass Insulators. On a wide variety of jobs, under the toughest field conditions, they've produced real savings in maintenance and replacement costs. Armstrong Cork Co., Glass and Closure Division, 295 Fifth Ave., New York, 16, N. Y.

ARMSTRONG'S GLASS INSULATORS

for communications . . . for power

You Have The World's Best Laboratory for Testing Hoists

Specifications are helpful guides in choosing the right hoist for your job. Factory tests give further assurance. But the hoists on your own job hold the key to your wisest final choice. These hoists have been tested in the world's best laboratory for your purposes. They have been operated by *your* men under *your own* exacting conditions. Their performance takes the guesswork out of choosing.

That's why Coffing Safety Pull Ratchet-Lever Hoists are standard with so many line maintenance and construction crews. Their record of durability and safety for more than 25 years under actual job conditions puts them in a class by themselves as the wise choice.

Examine the hoists in *your* "laboratory." Which is the oldest one in good working condition? When safety is vital, which hoist does your crew use? We believe the answer is Coffing — the *original* ratchet-lever hoist. If you would like more information on the complete line of Coffing Ratchet-Lever hoists, write for catalog SP5U.

COFFING

Quik-Lift Electric Hoists • Hoist-Alls • Mighty-Midget Pullers • Spur-Gear Hoists Differential Chain Hoists Load Binders I-Beam Trolleys

COFFING HOIST COMPANY
Danville, Illinois

(Continued from page 84)

both expense and capital, both labor and materials."

Emphasizing that many companies still have "Held Orders" and that each telephone installed is costing a great deal more today than last year, Mr. Huether stated — "And as our investment increases, more revenue is necessary."

"This makes it mandatory upon all of us," he said, "to tighten up our belts, find out where we can cut expenses and consider every possibility for more efficient operation. In other words, we must take inventory of ourselves, our market, our planning and our spending. The period ahead (and I am still optimistic, we are not going to have a depression) is going to separate the *Men* from the *Boys.*"

Discussing the subject of "talking about our business," Mr. Huether said — "We must keep our employes well informed."

"A well informed employe," he said, "is a better employe and can lend immeasurable aid in our many public problems. Information about our business must not stop with the employe. We must also keep the public informed. The more everyone knows about the complexities of furnishing telephone service the less apt we are to be criticized. Another thing — don't ever let anyone tell you we don't have any competition. Every individual, all business, and to a very large degree our government's agencies are all competing for that medium of exchange, the United States dollar."

Advising industry members to — "*Turn up your volume* — blow your own horn," Mr. Huether stated, "we aren't having any secrets or any magic formula, so why not make the facts known. As a regulated business everything we do is a matter of public record, so *turn up your volume* so our good customers, employes and neighbors will know and understand more about us. You can not buy Good Will — you must create it. Good service plus a well-informed public will lessen our burden . . ."

Problems of The Industry

GENERAL MANAGER Bartee stressed that telephone people have a peculiar responsibility and concern for the progress and devel-

• You'd have a long walk to the next gas station if you ran out of gas between poles. Those poles are strung with Amertel 135, and they're 2½ times as far apart as poles strung with ordinary BB wire.

Longer spans save you money. They require fewer poles . . . less pole hardware . . . fewer man-hours of labor . . . less hauling and digging. Maintenance costs are much lower.

Telephone customers benefit from the superior voice transmission characteristics of Amertel 135. And, since it withstands greater ice and wind loads, service is less likely to be interrupted.

To find out more about this time-tested, high-strength telephone wire, address a card to American Steel & Wire Division, Rockefeller Building, Cleveland 13, Ohio.

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opment of both the cities and rural areas of the state.

"In these modern times," he said, "full progress and development cannot be realized by any town or area without adequate and dependable telephone service; and to us is entrusted the task of providing that essential service. How well we do our job affects, either beneficially or adversely, the living conditions of many people. We feel our responsibility keenly."

Pointing out the importance of keeping the telephone industry in sound financial condition, Mr. Bartee stated — "A poorly fed cow gives little milk."

"We do not expect to earn any big profits or to cut any melons in the telephone industry," he said, "but we do want our earnings to be sufficient to enable us to do a full and complete job of meeting the state's need for good telephone service.

"We telephone people have been hard pressed with a multitude of extremely difficult problems over the last several years. The public has demanded a tremendous expansion of the service; the cost of everything that goes into the furnishing of telephone service has gone up time and time again; and there have been scarcities of manpower, scarcities of materials, and a scarcity of money to do the job."

Stressing the importance of informing the public about industry problems and requirements and securing their understanding and acceptance of the need to bring the price of telephone service into line with the higher priced economy, Mr. Bartee emphasized that — "This job must be one that is carried on consistently and continuously; we cannot hope that the public will be fully informed through a one-shot effort."

Commenting that the industry would like to furnish service to everybody, Mr. Bartee said — "We must as a practical matter, recognize that we can serve only those people who can collectively pay a sufficient price to cover the cost of providing the service. We want that number of people to be constantly enlarging and taking in a bigger and bigger proportion of the whole population."

Explaining that the chief obstruction to this service objective of both Bell and Independents, is the lack of an understanding on the part of the general public, Mr. Bartee warned — "We must make it clear to the public that our lawyers seeking higher rates in the hearing room, our financial people using the improved earnings to attract capital in the market place, our construction men building plant in Kentucky, and our operators handling the public's calls at the new switchboard, are all part of one chain of events. And, further, that all of our people involved in that chain are parts of one team working together toward one end — meeting the public's full requirements for telephone service."

Toll Dialing

DISCUSSING traffic and toll dialing, Mr. Druley noted that in the future 20 percent of the calls may be operator dialed and 80 percent customer dialed.

"You all can see if a long range objective of this kind is to be attained," he said, "the further planning and effort that lies ahead for both the Independent and Bell companies in their dual efforts to continually improve the service offering to the public."

Mr. Druley pointed out that "anytime an exchange area ties in with a regional or national part of the dialing toll network, the number of inward calls operator handled are immediately reduced in proportion to the number of originating toll centers which can dial through to your office, thereby giving more rapid service."

"This whole pattern is cumulative," he said, "and any time another office any place in the country is added to the dial network or any time a new A4A switching machine is cut into service, the cumulative effects are wide-spread in many other parts of the country. If you have dialing out, your potential of toll dialing is increased and if you have facilities for others to dial in, your inward work will resultingly decrease."

The Human Factor

STATING THAT telephone management has three major responsibilities, Mr. Laver told his audience — "Management has the responsibility of providing and maintaining adequate equipment to assure a smooth flow of telephone traffic. That is management's obligation to the customer. Management has the additional responsibility of keeping the company financially sound. That is

management's obligation to the investors. Management's third major responsibility today is to consider the human factor in telephony. That is management's obligation to the employes."

Describing this third responsibility as a relatively new charge placed upon management, Mr. Laver said the task for management is to consider the basic wants and desires that are a part of all humans.

"The points of action that management must take in regard to the employe," he said, "must coincide with his drive to satisfy these desires. Because different employes tend to place different emphasis on basic desires, management must be prepared to review and revise its program as it obtains and studies employe reaction."

Commenting that each human being has the same basic desire for security, Mr. Laver said management must instill a sense of security in the worker.

"To do this," he said, "management must treat its employes fairly, it must assure them that they have an important job in an important industry and it must give them the opportunity to belong. Given the opportunity to work, the employe wants the opportunity to do his job well. He not only wants to know what his specific task is, he wants to know how it fits into the overall picture. He not only wants to know about his job, but he is interested in many things regarding the company that are not related to it."

Describing the workers, Mr. Laver stated workers want to know that when they satisfy a given set of conditions, talent for their jobs, imagination, resourcefulness, and additional training, they may expect to step up in their company. In short, the workers want to know where they are going and what it takes to get there.

"The company," he said, "can successfully satisfy this desire by informing the employes that promotions shall come from the ranks whenever possible — then actually practice the policy. As management continually seeks qualified supervision this policy of promotion from the ranks not only benefits the employe, but also benefits management. Employes are more willing to place their confidence in one of their group they know to be qualified as a leader . . ."—THE END

Nebraska Independents Elect J. M. Hudson President

THE 54th ANNUAL convention of the Nebraska Telephone Association was successfully held in Omaha March 23 and 24 and established a new attendance record for that city. Favored with agreeable weather and an interesting program, delegates came from all parts of the state to attend the meeting.

Delegates to the convention enjoyed a program packed with interesting speakers, visited the Hobby Show put on by the Pioneers', made use of the Assistance Committee headquarters, and viewed the latest equipment and supplies displayed by almost 25 associate members. A ladies luncheon followed by a program of entertainment was well attended as were all convention activities.

The convention elected four new members to the board of directors: Wm. T. Autry, Columbus; F. R. Eckley, Omaha; Pat J. Carey, Petersburg; and K. L. Lawson, Lincoln.

The board of directors elected the following officers to serve during the forthcoming year: J. W. Hudson, Aurora, president; Vernon Bellows, Blair, vice-president; and James L. Morrison, Lincoln, secretary-treasurer.

The convention also passed two important resolutions, one of which urged Nebraska members of Congress to support the reductions in Excise Taxes on telephone service and the other resolution urged all companies to give serious and careful study to the Model Tariff looking toward the adoption of this highly useful and important aid.

At the opening convention session, L. O. Arstad, general manager, Northwestern Bell Telephone Co., Omaha, welcomed the convention delegates to Omaha. Mr. Arstad pointed out that the day has passed

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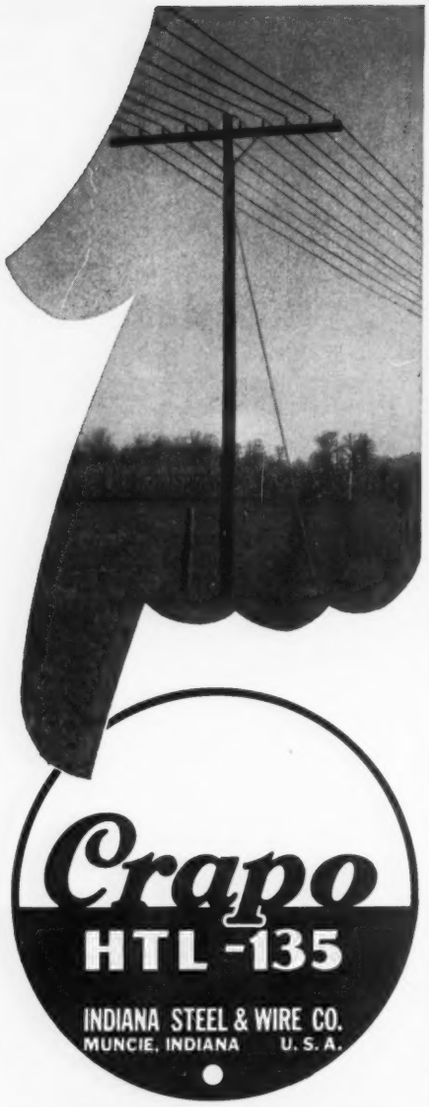

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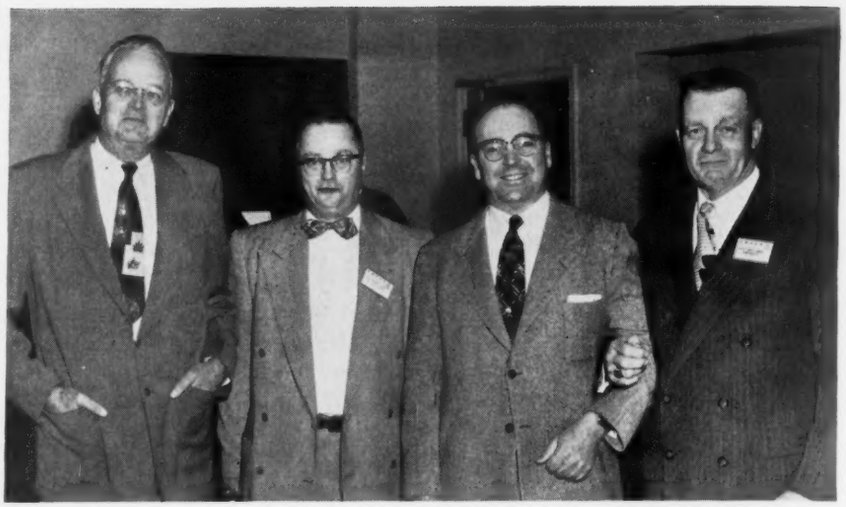


Among those attending recent Nebraska Convention were (l. to r.) PAT J. CAREY, Petersburg; H. D. THOMPSON, Wisner; WARREN B. CLAY, Hutchinson, Minn.; and FRED WUELLNER, Bancroft.

when the problem was how to provide enough equipment to meet subscriber demands. With facilities now available telephone companies will retain their share of the consumer's dollar only if they get out and sell their service. Mr. Arstad urged increased salesmanship and advertising programs to accomplish this result.

The second speaker, Nebraska Association President H. D. Thompson of Wisner, emphasized that each Association member has a responsibility.

"When a task is assigned to you," he said, "you must be willing to do your part in the job assigned. Let's not have the attitude — 'Let Joe or John do it,' — but I'm going to do it to the best of my ability. In the past men have been assigned jobs. In the main they pitched in and gave it all they had. That is all that can be expected of anyone and all that should and will be asked.

"If we have a program you like, write and tell us. If you have suggestions that might improve future meetings, we want these also. All these things help . . ."

In his closing remarks, Mr. Thompson stated that "To get the most good out of the Nebraska Telephone Association we must let every eligible member really know our organization. Our's is a non-profit organization — a small investment will reap rich benefits."

Describing some of the benefits or services provided by the Nebraska Telephone Association, Mr. Thompson said the organization provides:

Members of this Nebraska Convention group are (l. to r.) F. F. FRANCISCO, Omaha; M. K. JAMES, North Platte; AVON CONRAD, Minneapolis; and G. L. FRASIER, Omaha.

(1) Information on telephone facts and problems.
(2) District meetings where knowledge is gained, public relation problems may be solved, and rates and service problems are cleared.
(3) Educational meetings — Schools of Instruction on Maintenance-Cable, Tree Spraying, etc.
(4) Annual conventions where general information is presented and leaders in the telephone industry discuss national problems.

"Finally," he said, "get the most benefits from your association by taking an active part. It is impossible to attend all meetings, but let's try. You board members — let's plan to attend all meetings called by the president or secretary. Accept jobs on committees and carry them out to the best of your ability. If you do this, I'm sure we will build a stronger and better association."

Nebraska Association Secretary, James L. Morrison, Lincoln, briefly reviewed 1953 activities and called special attention to the Model Tariff prepared and distributed by the association earlier this year.

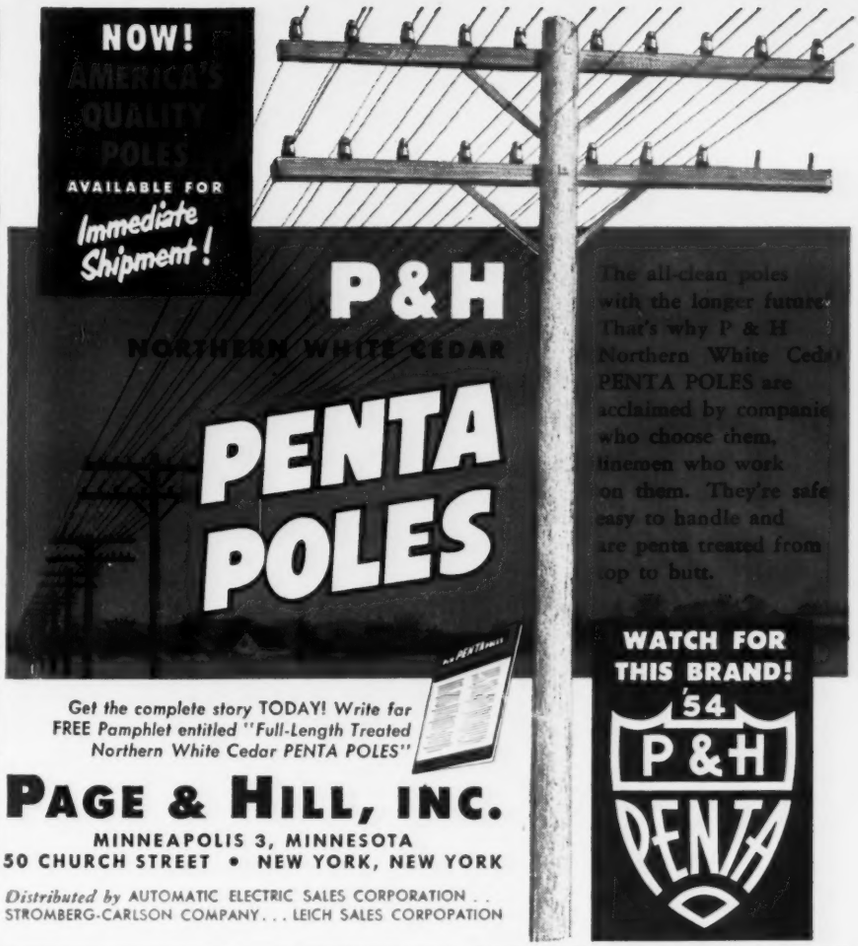
Mr. Morrison pointed out the protective features found within the tariff and urged all companies to give prompt attention to adopting the tariff. Form letters for use in seeking Nebraska Railway Commission authorization to use the tariff have been distributed to all companies and upon signing these letters will be filed together with the commission.

"The tariff," Mr. Morrison said, "will promote uniformity throughout the smaller companies in the state and provide authority for many practices commonly used by telephone companies. The Association will keep the tariff up to date and plans are underway to distribute an Administrative Manual for use with the tariff."

Advertising & Public Relations

PRESENTING the report of the Association's Advertising and Public Relations Committee, A. B. Gorman, of Lincoln, stated, "There is a New Look in advertising in the telephone industry because for the first time in about 13 years many telephone companies are reaching the point where available facilities are

(Please Turn to Page 94)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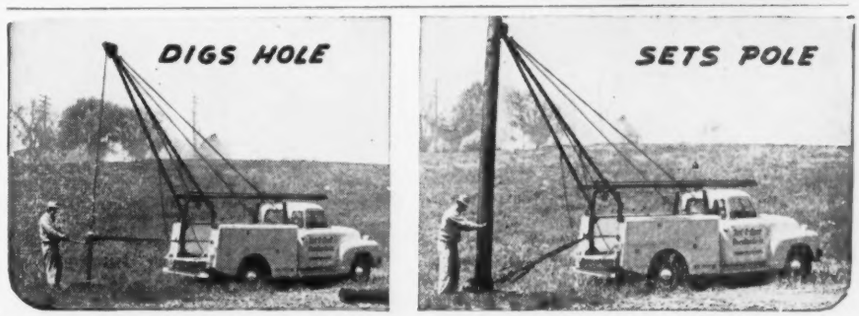

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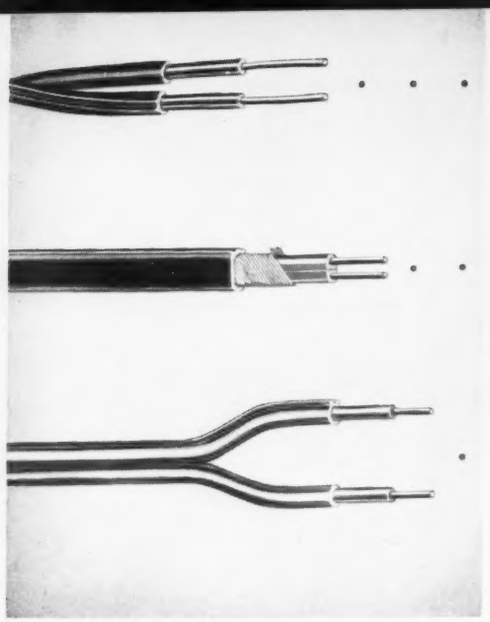

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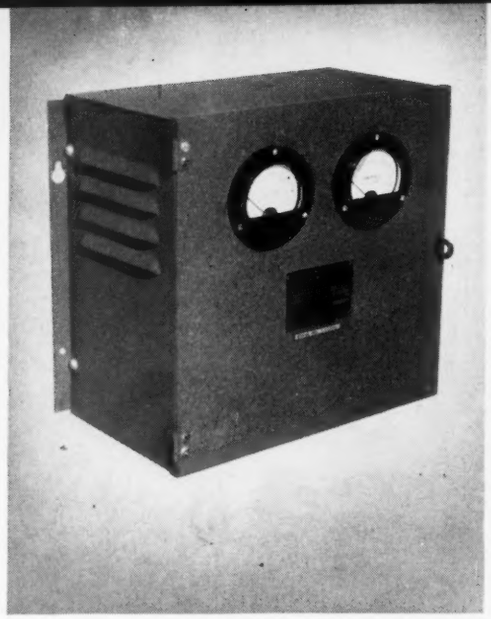

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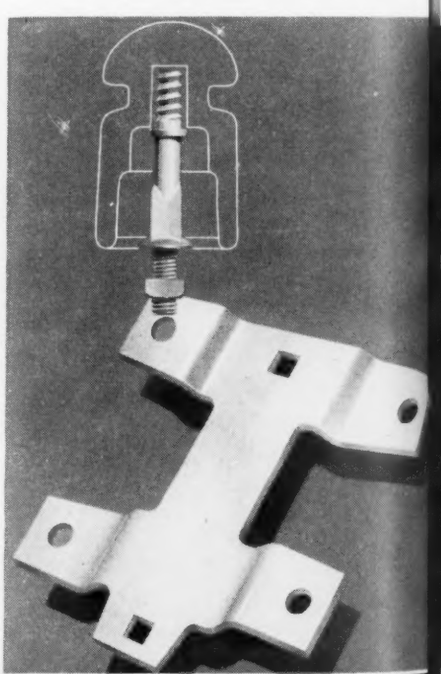

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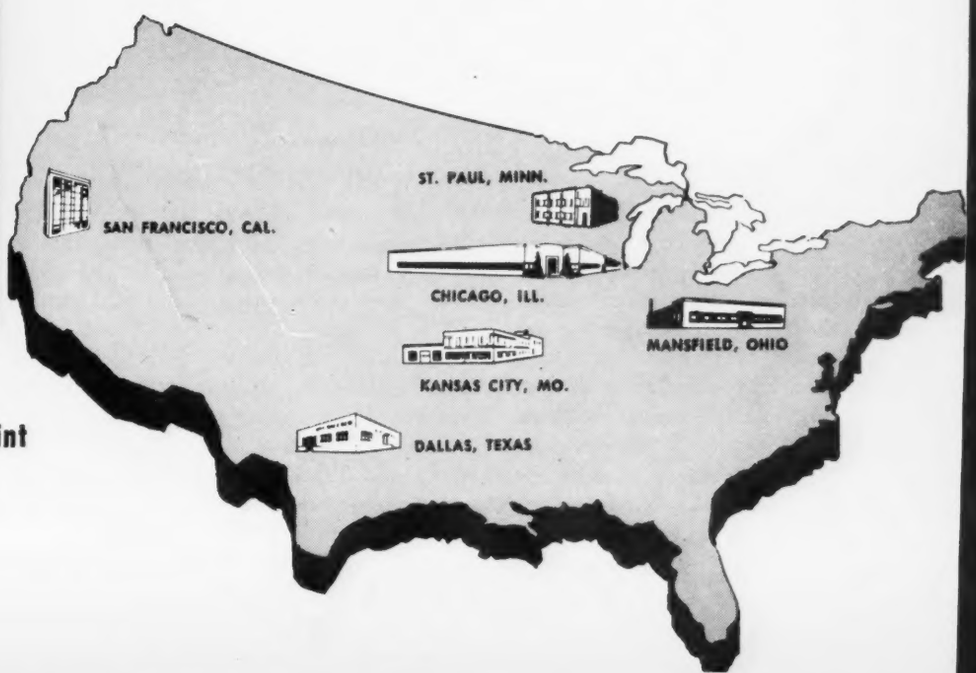

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Pioneer Hobby Display at recent Nebraska Convention. ALLAN G. BARR, Omaha, inspects the display.

matching or exceeding the customers' demand for service. This is true with respect to both local and long distance service."

Emphasizing that progressive telephone management is thinking along the lines of promotional advertising, employe sales campaigns and more customer interviews to stimulate long distance usage, installation of more telephones, both main telephones and extensions, the sale of extra directory listings and all service items that mean more business and more revenue, Mr. Gorman suggested that planning and thinking should be geared to the apparent needs of the times.

Commenting that the extent and variety of the activities would depend on the size of the organization, Mr. Gorman mentioned the following routines: —

(1) Print information about long distance service and rates in a prominent place in your telephone directories. The inside front cover is an excellent spot. This can be done at little cost and yet it serves as a constant reminder to your customers to use the service and that rates are low.

(2) Get yourself and your employes in a selling frame of mind. Look around among your friends for good prospects for extensions. Have installers suggest extensions when they install telephones.

(3) Make maps of rural areas to see who prospects for service are and how you can best serve them. Then interview the prospects.

(4) Make lists of subscribers who use long distance frequently and provide them with personal directories for listing numbers that they call. Give such directories to others also who are interested. Call on your larger toll users occasionally to be sure your service is satisfactory.

(5) Take inventory of your directory advertising. This is an excellent source of revenue that should receive full attention. If you have not done so, you might explore the possibility of turning your directory sales over to a specialist in this field.

"These," he said, "are only a few of the many things you can do without much effort or expense to give your business a shot in the arm if it needs it. They are not presented as new ideas. They have been tried before and are being used now by some companies. However, we suggest that if you are not now thinking along these lines you might find it worthwhile to do so. The more your public knows about your service, your policies and problems, the more useful the service becomes, the better it is for everybody and the easier it is to sell more of it."

Assistance Committee

PRESENTING the Assistance Committee report, G. L. Jorgenson, Indianola, stated that 1953 was an extremely busy year for telephone men and women. Total expenditures for service improvements and expansion totalled nearly $10,000,000. Dial conversion and other improvement programs were stepped up and will continue at a high rate during 1954 and 1955. A number of companies have announced their intention to seek an early solution to rate and financing problems.

"Committee members were active," he said, "in a number of projects on a number of different fronts in all corners of the state. The committee is continuing its purpose of rendering assistance whenever and wherever needed. It is hoped that committee activity can be stepped up during the coming year through such activities as meeting with boards of directors and stockholder groups for the purpose of explaining and assisting in improvement projects.

"At present at least 23 dial conversions for as many exchanges are scheduled by Independent companies during 1954, 1955 and the forepart of 1956. With the long term trend clearly pointing toward further installation of dial equipment we expect other companies to announce their plans in the coming months."

Warning that the ability to obtain adequate long term financing is still a problem for many small companies, Mr. Jorgenson said, "There is no paucity of capital for larger companies but many of the smaller concerns are finding it difficult to locate improvement and conversion funds in amounts less than $100,000."

"Some investigation and study," he said, "has been made by your committee of the present financial problems facing Independent telephone companies in this state and we find that many companies should take active steps to have their rates adjusted in such an amount as is found to be necessary to bring an adequate return on their investment. Our investigation shows that too many companies are presently having difficulty in meeting their operating

expenses and that they are not earning a fair profit on their investment.

"These high operating expenses, which most companies find hard to reduce and still maintain efficiency, tend to deter and hinder these companies from reinvesting in their plants and in meeting the demands of their subscribers for improved service. It is further found that these companies are not making annual reinvestments in their plants equal to the amount of their annual depreciation charge.

"In the past year 16 companies have received rate increases in Nebraska and more companies will need to make application for rate increases if they are going to improve their plants and meet the demands of their subscribers for better service. We, therefore, suggest that each company make a careful audit of its business and if income cannot be increased by the use of efficient methods so that some annual re-investment can be made in their plants and in improvement of their service to their subscribers, that steps be taken to have their rates adjusted."

Following Mr. Jorgenson's report, F. F. Francisco, executive assistant, Northwestern Bell Telephone Co., Omaha, demonstrated the use of coaxial cable and microwave relay in speeding telephone conversations.

Loans For Small Companies

DISCUSSING loans for small Telephone Companies, P. J. Lucier, vice president of the Stromberg-Carlson Credit Corp., Rochester, N. Y., emphasized that given just *one* thing — adequate management — "there isn't a small company in this country that can't start on a modernization and expansion program."

"There is no longer any excuse to give" he said, "because there are or will shortly be enough manufacturers, banks or other lending institutions actively engaged in making loans to small companies that you can — if you will — qualify by one means or another. If ever there was a time to make up your mind to get into or to get out of the telephone business this is it. And if you can't come to a conclusion you may rest assured that the public will make up your mind for you."

Stating that financing a conversion to dial is much like financing the construction of a house, Mr. Lucier said — "When you start to build a house you don't begin by arranging

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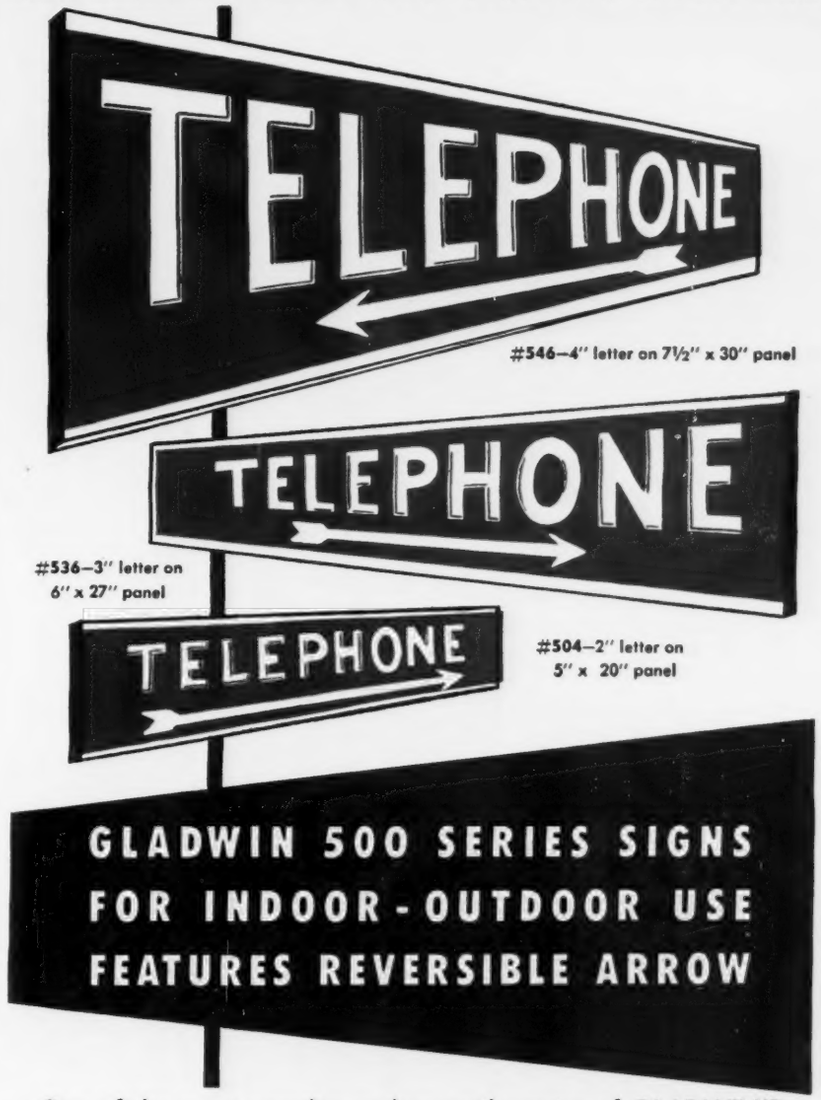

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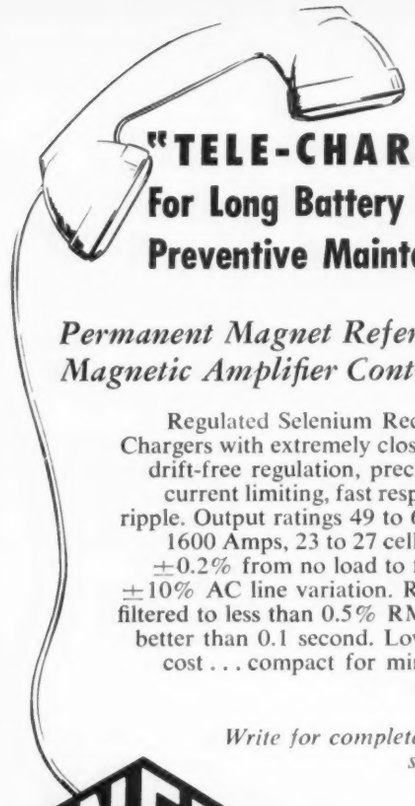

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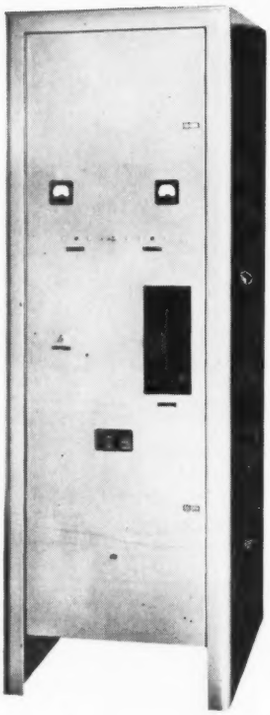

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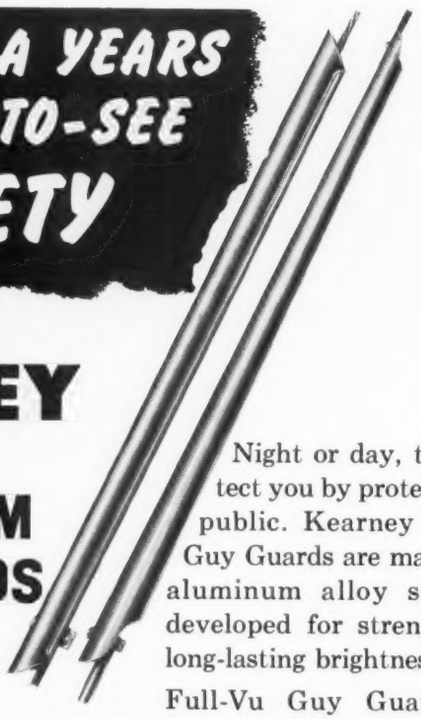

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a long-term mortgage and start paying it back right away."

"You don't want to make principal payments until you move in," he said. "The same is true on a conversion program. You can't move in until the new equipment is cut into service. So first — just as on a house —you need a construction loan paying only interest on it. The principal payments will come from operator wage saving and new dial rates. This is a relatively short term loan — two or three years — and is the kind of a loan that a commercial bank can make."

Pointing out that not many banks know much about telephone loans, Mr. Lucier said — "It's a specialized field and few banks can afford to maintain the expert staff needed."

"I'm convinced," he said, "that—if the application were properly presented—most any large bank would listen sympathetically. The equity requirements of banks must be higher than Stromberg's program, for instance, since they must look to institutional lendors — such as insurance companies — to refund the loan about a year after conversion and set up the long term repayment provisions."

Discussing loan payments, Mr. Lucier advised — "First, you can be sure that if you have borrowed a substantial amount in relation to your equity, it will take a long time to pay it back."

"You can't do it in five years," he said, "and seldom if ever in ten. You must take about 15, 20 or sometimes 25 years. REA loans are so high in relation to equity that their full 35 years is required. There aren't many lendors who are equipped to make long term loans. If the amount borrowed is less than $100,000 it is very difficult indeed to make such arrangements and while I don't want to discourage you from looking, the chances are slim that you will find an insurance company who will be interested.

"Until recently we were the only long term private investor making loans to independents on a nationwide basis. I understand that other manufacturers have or will have shortly, similar plans and I'm sure they will be glad to pass along information about their programs. The best part about a manufacturer's type loan is that it wraps up into one package both an interim and long

term program and provides you with the expert legal, accounting and engineering assistance you need."

In his closing remarks, Mr. Lucier urged his audience to remember that "manufacturers have to get the money elsewhere."

"It isn't all their money they're loaning anymore than the money a bank loans belongs to the bankers," he said. "Banks have bank examiners looking over their shoulder and rightfully so. In our case Metropolitan Life Insurance Company provides our funds and we don't get in on a blank check. Any lendor must have certain restrictions — for those companies who have really shopped for money the restrictions seem mighty few and reasonable.

"If you are turned down today it probably means that the loan is not good for you either. Loaning money is just about as much of a science as building dial equipment. You've got to have the right combination of parts skillfully put together or it won't work. By and large the man whose job it is to lend money probably knows more about a good loan than you, just as you may know more about a telephone plant. The smart borrowers don't fight the lendor but join him and draw upon his knowledge and experience to their own benefit. Don't try to write a book that's already been written."

Other speakers appearing at the second convention session were: T. DeWitt Talmage, manager, customer relations department, Kellogg Switchboard & Supply Co., Chicago, Ill.; Merle M. Hole, chairman, U. S. I. T. A., Personnel Committee, Lincoln; and Walter F. Roberts, personnel director of the Lincoln (Neb.) Telephone & Telegraph Co.

At the third general session U. S. I. T. A. President Warren B. Clay, Hutchinson, Minn., discussed activities of U. S. I. T. A.'s Washington office. Other speakers appearing at the session were: Vernon Bellows, general superintendent, Blair (Neb.) Telephone Co., and Richard H. Larson, commissioner of the Nebraska State Railway Commission.

In announcing his topic, "Switching Lines — Objective 1954," Mr. Bellows stated his belief that telephone companies have an obligation to those subscribers who reside on telephone lines owned by switching companies. He pointed out that almost 25,000 rural subscribers re-

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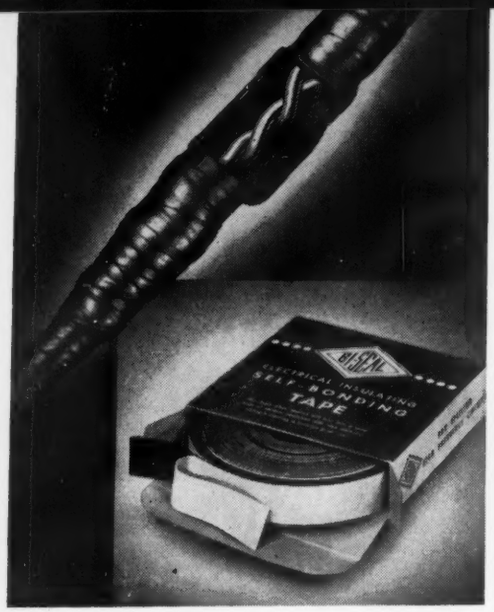

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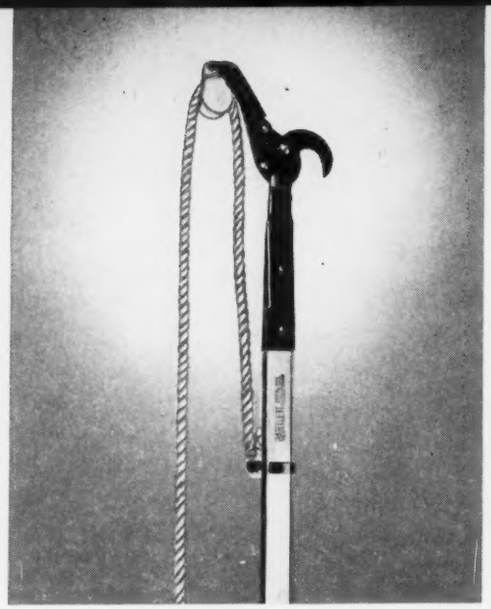

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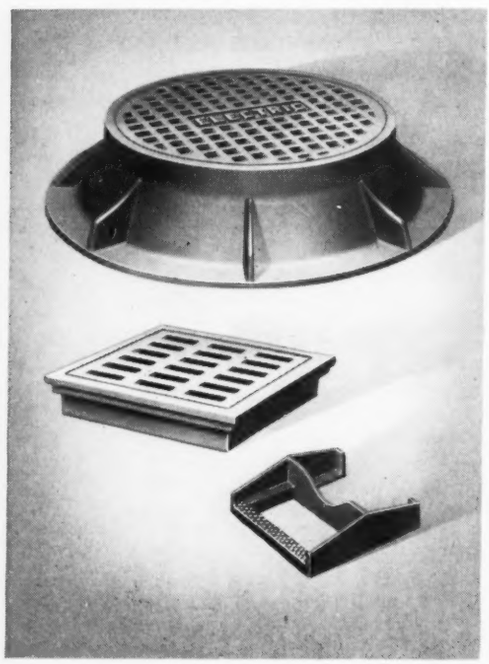

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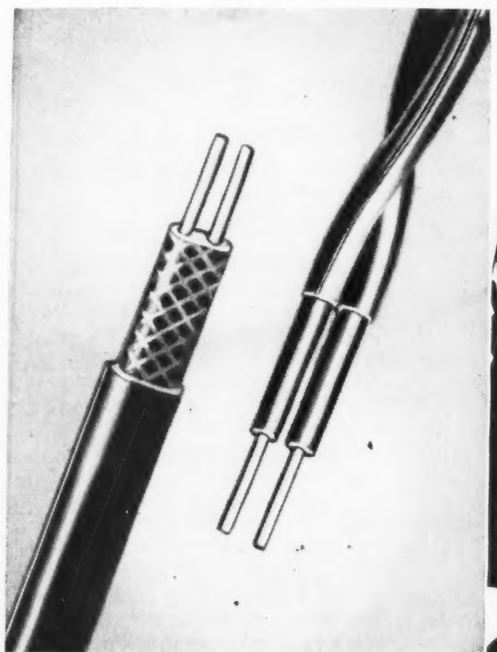

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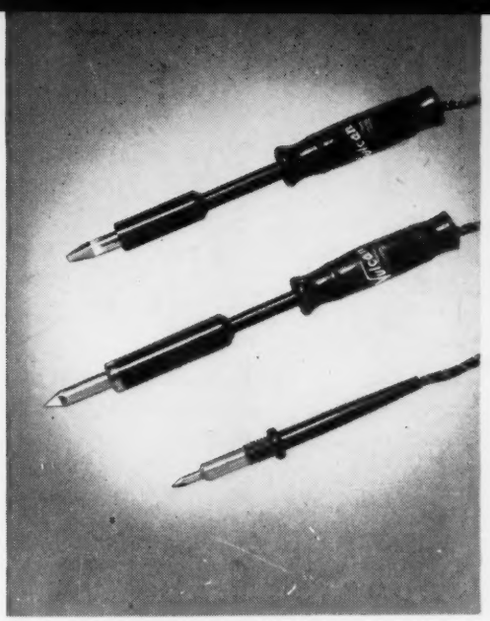

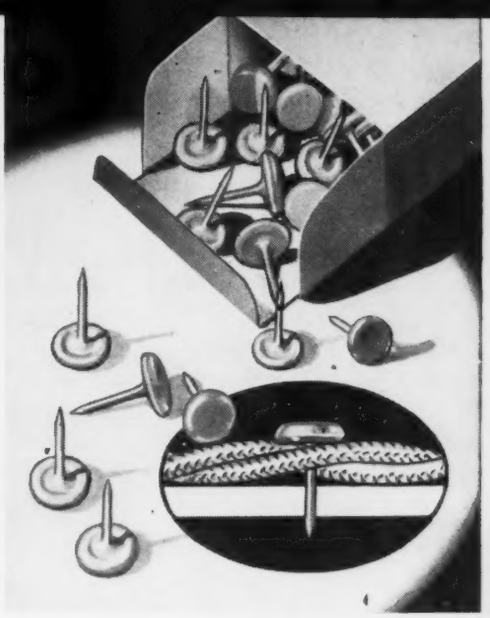

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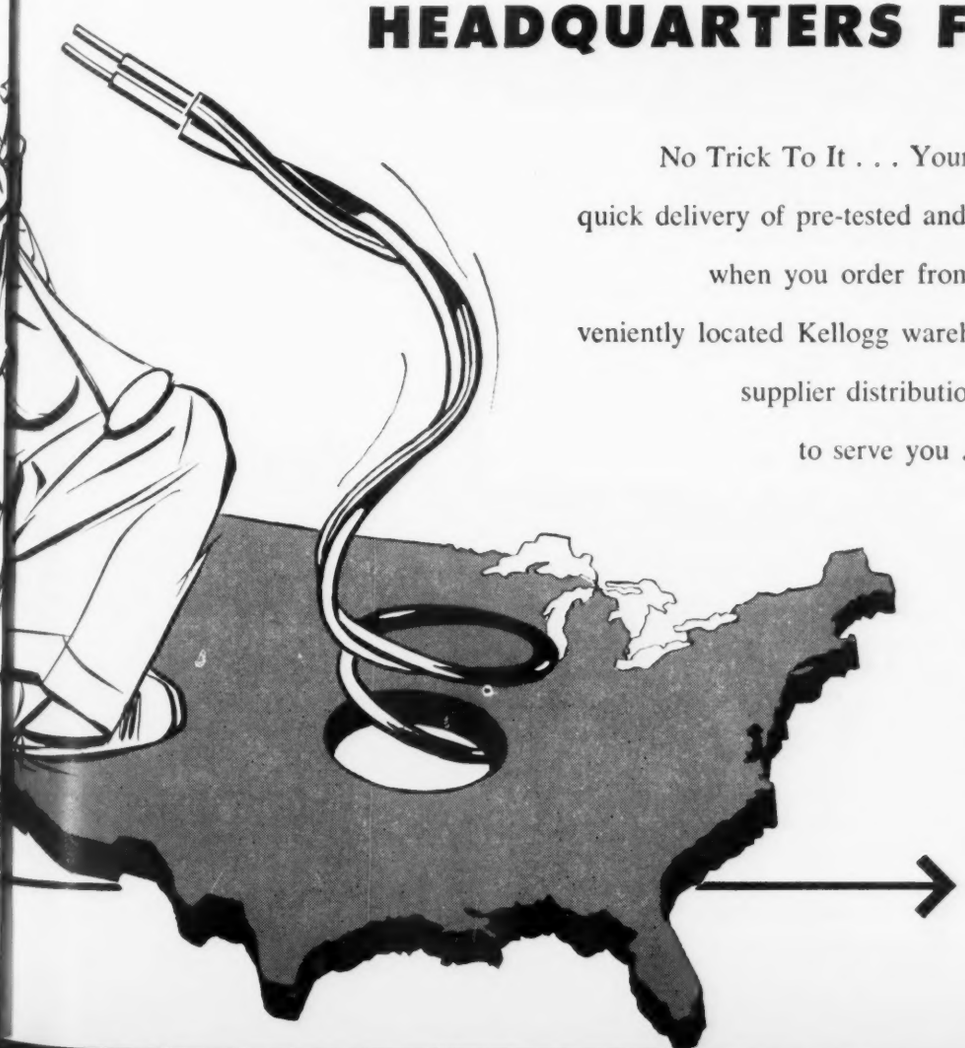

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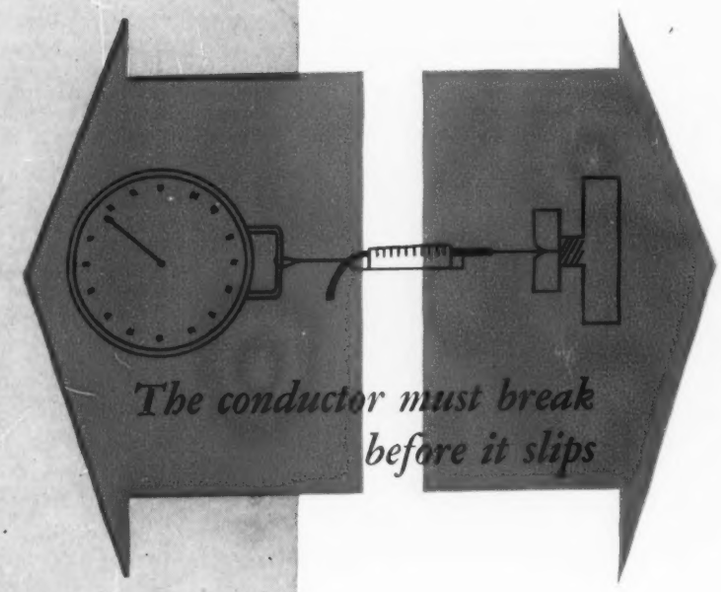

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The jaws of the machine are then gradually separated until the conductor breaks. The conductor must break before there is ANY slipping of either the jacket or the insulation.

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ceive their service over switching lines and that many of these lines are in an inferior condition.

"Switching subscribers," Mr. Bellows said, "want good telephone service and are willing to pay a fair and reasonable price for their service but they also need help and assistance in rebuilding their lines. This work includes the formation of a building committee, preferably with a younger man in charge, a fund raising campaign, formation of work crews after materials have been ordered, and the preparation of suitable organizational framework.

Mr. Bellows also cautioned against underestimating the cost of rebuilding these lines. In conclusion, he stated that often $10 more per year means the difference between good and bad service for switching subscribers. Better service can be obtained through the co-operative assistance furnished by telephone companies.

Commissioner Larson urged support for a stronger and more effective railway commission in Nebraska. Although industries under commission regulation have vastly expanded, Mr. Larson pointed out that the commission has no more space and no more employes than it had years ago.

Mr. Larson suggested that the time lag which transpires during rate and other applications by telephone companies could be reduced if the commission had a larger staff and more room. Failure to obtain adequate appropriations from the state legislature results in delays and restricts the commission's ability to do those things it wants to do and should do.

Mr. Larson furnished examples of cases in which the Commission has saved money for the people of Nebraska. He spoke of railroad freight charge adjustments which produced substantial savings, encouraged industry to locate in the state and thereby helped to improve the demand for telephone service.

At the final convention session Mal Hansen, farm editor of WOW and WOW-TV, Omaha, showed colored slides and related his experience of a farm study tour of Europe by American farmers in 1953.

The program was concluded with a 30 minute motion-picture produced by The Lincoln Telephone & Telegraph Company in commemoration of its 50th anniversary.—THE END.

Directors and officers of the Grand River Mutual Telephone Corp., Princeton, Mo., met recently to approve plans for construction of an REA-financial system which will serve 11,000 rural families. Shown above are: Back row (l. to r.) MORRISON NEELY, HUGH O'HARA, EDWARD MADDOX, MARION L. CRIST, FRANK LUFF (Partly obscured), VERNON L. FREEMAN, L. S. WOOLSEY, WILFRED SELBY, VENE MILLER, EMMETT WILEY; Middle row (l. to r.) E. E. ANDERECK, RUSSELL PICKETT, BAKER ATTERBURY, LOWELL MOORE, WILLIAM J. NICHOLS, CLAYTON SHELTON, ROLLIN RYAN, ARNOLD LOVETT, C. W. CHASTAIN, A. B. SMITH; Front row (l. to r.) EVERETT MAY, RALPH E. PARKER, HARRY JOHN, CLARENCE RATLIFF, J. R. LOWRY, RAY BARNETT, MAURICE HEIN, HARLEY LEAZENBY.

Industry News Briefs

Missouri Group Starts REA Financed Project

THE GRAND RIVER Mutual Telephone Corp., already the nation's largest mutual using Rural Electrification Administration financing, cemented plans April 14 at a meeting in Princeton, Mo. with consulting engineers, REA officials, and company directors and representatives. Present plans call for construction to start within the next few months on the system which will ultimately bring modern dial telephone service to 11,000 rural families living in 11 counties in Northwestern Missouri and Southwestern Iowa. Many of the families to be served are presently without telephone service of any type.

An office was opened at Princeton by Crist & Associates, Little Rock, Ark., May 1. Engineering personnel will make this office their headquarters for the construction period.

Involved in the company's plans will be the construction of approximately 2700 miles of pole line and cable and the installation of 23 dial central offices. The type of service to be rendered by the corporation will be the most up-to-date modern type of dial service available. In collaboration with the consulting engineers and the REA, Grand River has explored the possibilities of providing service through a number of plans. After research extending over several months, it was determined at the meeting April 14 that the automatic dial operation will provide the system with the best, most economical, and best operating system possible to meet the subscribers' needs.

C. W. (Bill) Chastain, Grand River manager, said following the meeting, "It has taken a long time to complete our planning, but we are ready now to begin rebuilding every foot of plant, replacing every telephone, all the central office equipment, and almost all of the buildings and doing it just as rapidly as possible."

Under the plan approved for construction, eight-party rural service will be available to people located in the smaller exchange areas for $3.50 per month, and in the larger exchange areas for $3.75 per month, subject to commission approval.

Friends and co-workers of MISS THERESA SCHNEIDER (right) recently honored her at a dinner party celebrating her 50th year as a telephone operator for Union Telephone Co., Owosso, Mich. The climax of the evening occurred when CARMEN WEIPERT (left), Owosso operator, presented Miss Schneider with a television set from the company and her associates.

REA Amplifies Criteria For Using Extended Area Service

CRITERIA on which a Rural Electrification Administration telephone borrower may decide whether or not to institute extended area service have been outlined by Deputy Administrator Fred H. Strong in a policy bulletin to the REA borrowers. The bulletin is an amplification of previous REA policy statements on the subject.

In establishing the need for the service, operating experience will provide a real basis for determining the probable extent of use and the net costs of EAS as against tool oper-

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ation, Mr. Strong declared. Other factors, as previously outlined, include community of interest and proximity of exchange areas.

Analysis of costs, the bulletin brought out, requires a study of entire toll traffic of the borrower; annual changes of EAS equipment and facilities, including depreciation, cost of money, taxes, maintenance, and similar items; and charges by connecting companies.

A commitment by the connecting company is a necessary part of the pre-loan data, it was added. In negotiating agreements, the bulletin added, each company should provide its own termination and switching facilities, and one-half of the trunk mileage, except that the smaller exchange may provide the excess trunk mileage over the distances greater than a 20-cent station-to-station toll charge. It is generally considered impracticable to administer an EAS agreement based on annual costs to each party, because of the complexity of making separation studies, the bulletin added.

F. E. NORRIS (left), president of General Telephone Co. of Michigan, on March 1 marked his 30th anniversary with the General Telephone System. He was presented a diamond service pin by CLARENCE W. SESSIONS (right), senior member of the company's board of directors. Mr. Norris joined the General System on March 1, 1924, as a night information operator for the old Santa Monica Bay Home Telephone Co., a predecessor of General Telephone Co. of Calif. In 1947, after rising to the position of director and vice-president of the California company, he became a director and vice-president of General Telephone Service Corp. The following year he was named a vice-president of General Telephone Corp. and in 1951 was promoted to the presidency of the Michigan company.

Perrine Named to NARUC Special Telephone Committee

GEORGE R. PERRINE, Chairman of the Illinois Commerce Commission, has been appointed to the National Association of Railroad & Utilities Commissioners' Special Telephone Committee. He succeeds Ohio Commissioner Robert Moulton, since the Ohio commission has withdrawn from NARUC membership.

Chairman Perrine, who joined the regulatory agency early in 1953, addressed last year's NARUC convention on regulation of small telephone companies, emphasizing the necessity for keeping the companies financially healthy.

Other Commissioners on this NARUC body are Chairman Spencer Eddy, New York, Matt L. McWhorter of Georgia, Peter Mitchell of California, Warren Buchanan of Indiana, and W. Marshall King of Virginia.

In another appointment by NARUC President C. L. (Roy) Doherty, W. F. Lebo, Chief Engineer of the Indiana commission, was named to the Special Telephone Committee's subcommittee of staff experts.

R. L. Post Joins General Tel. Co. of S.W.

R. L. (DICK) POST has been appointed public relations manager for the General Telephone Company of the Southwest, Walter G. Wright, president, announced last month.

Mr. Post has been assistant manager of the San Angelo Board of City Development and Chamber of Commerce since July 1, 1953.

The appointment of Mr. Post, Mr. Wright said, would relieve Glenn R. Williams of one of the two jobs he has been holding with the company. Mr. Williams, who has been acting as both public relations manager and advertising manager, will now be able to devote his full time to advertising, Mr. Wright added.

Mr. Post is a native of San Antonio and was graduated with a Bachel-

The Southern district of Community Telephone Co. of Wisc., comprising Walworth, Clinton and Darien exchanges, recently met for a big dinner after which special service pins were awarded to all employes having five and more years of service. Reading from left to right are: Seated—WM. BALL, Clinton; WALTER MANNING, Walworth; MINNA REIMER, Clinton; LILLIAN McCARTHEY, Darien; BARBARA EVERHART, Clinton; and B. F. STALTER, Vice President, and General Manager, Black River Falls. Second Row—B. H. PIEPMEIER, president, Black River Falls; HAZEL NASH, Darien; MYRTLE BALL, HELEN NIELSON, and ROBERTA A. TIFFANY of Clinton; DELLA E. SCHULTZ, BESS BABCOCK and LUNETTA KOEPPEN of Walworth. Back Row—DARRELL L. DE HAAN, DONALD PARSONS, District Manager, JANICE VAIL, LaVONNE LEA YOUNG, FLORENCE ANDERSON and PHYLLIS C. DAVIS of Walworth; and A. W. POWELL, Commercial and Traffic Supt. of Black River Falls.

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CHICAGO 41, ILL.

or of Science degree in Journalism from Southern Methodist University in Dallas where he managed KSMU and KSMU-FM, the school radio stations, for two years. While attending SMU he was one of 10 students to receive the "M" Award for outstanding service to his school, was named to Blue Key Honorary fraternity, and was listed in "Who's Who in American Colleges and Universities."

After graduation, Mr. Post became news editor of Radio Station KPAT in Pampa, Texas. He has worked for the San Antonio Light in advertising and as reporter, sports editor, and managing editor of the *Alice (Texas) Daily Echo*. He entered public relations work with the San Angelo chamber after a year as managing editor of the *Alice Echo*.

United Utilities Records Large Growth During 1953

DUE PRINCIPALLY to the acquisition of the Investors Telephone Co. during the year, United Utilities, Inc., recorded a gain of 102,972 telephones during 1953, to bring the total of stations operated by subsidiaries at the end of the year to 342,899, President Alden L. Hart pointed out in the annual report issued to stockholders.

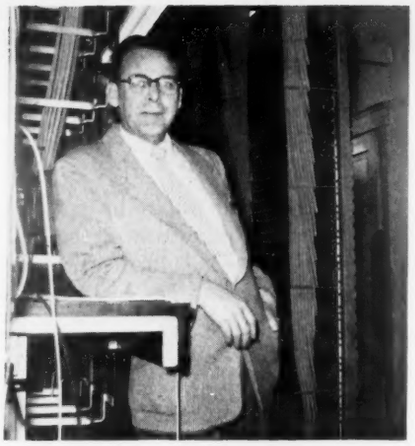
During 1953, United spent $11,046,179 on its construction program. While the acquisition of Investors and resulting changes make impossible a clear-cut comparison of last year's operation with that of previous years, growth resulting from the purchase is reflected in figures for the past two years.

For 1953, United had total operating revenues of $22,787,345, against $15,018,423 in 1952; operating expenses of $15,376,042 against $10,419,030; paid total taxes of $4,026,443 compared with $2,465,394; and recorded net income of $1,839,624 compared with $1,140,701.

Southwestern States Co. Plan $4,700,000 For Construction

FOLLOWING construction expenditures in 1953 that resulted in net additions to plant of over $2,575,000, the Southwestern States Telephone Co., with operating headquarters in Brownwood, Tex., plans to spend a total of $4,700,000 in 1954 for further modernization and additional facilities.

Southwestern States, which added



WILLIAM W. JOY, Wire Chief, Owosso, Mich., has been promoted to outside plant supervisor according to T. A. Saunders, president, Union Telephone Co. The post is a new one and is made necessary because of the vast number of telephone installations, about 12,000 a year, by the Company in Michigan. Mr. Joy started with Union Telephone Company in January of 1929, and has served as switchboardman, installer, general plant department employe and wire chief. He enlisted in the Navy in 1942 and served in the Pacific area until November 1945 as a chief electrician. Roy Nichols, with the company since 1913, has replaced Mr. Joy as Wire Chief in Owosso.

5883 telephones last year to bring the total served to 90,593, had operating revenues last year of $6,508,358; operating expense of $4,822,738; and net income of $1,685,620. For the previous year, the comparative totals were, respectively, $5,663,167; $4,306,393; and $1,356,774.

California Water & Tel. Reports Heavy Construction

THE 1953 OPERATIONS of the California Water & Telephone Co., according to the annual report of President Chester H. Loveland, showed a net gain of 8384 telephones, much progress in the enlargement of existing telephone exchanges, establishment of new central offices, and extension of automatic switching installations. Approximately 92 percent of the company's more than 72,000 telephones are dial operated.

Operating revenues for 1953 were $6,114,187, an increase of 33.9 percent over the previous year's revenues of $4,569,197. Net income after taxes for both telephone and water services was $1,620,249, against $1,006,145 in 1952.

The company has under way in 1954 the largest telephone construction program in its history calling for expenditure of $5,500,000.

The report noted that the San Fernando Valley is probably the nation's fastest growing area and dur-

ing the past eight years telephones have increased 366% and telephone plant investment 1500%.

Oliver Iron & Steel Advances Murphy

B. W. JOHNSON, general manager of sales, pole line materials division of the Oliver Iron & Steel Corp. has announced the appointment of Robert A. Murphy as sales representative of the company's pole line materials division in the Minneapolis-St. Paul territory. At present Mr. Murphy is headquartering at Huron, South Dakota.

Mr. Murphy will report to Oliver's district office at Chicago, under the supervision of C. Rea Guthridge, Midwestern sales manager.

Automatic Appoints Gage Manager of Supply Sales

ANNOUNCEMENT has been made by Automatic Electric Sales Corp. of the appointment of William S. Gage as manager, supply sales, effective May 1. Mr. Gage, who has been

WILLIAM S. GAGE was recently appointed manager of supply sales, Automatic Electric Sales Corp.

assistant manager, carrier and radio sales for the past eighteen months, succeeds D. H. Deaver who now becomes assistant to president H. F. Lello of the Sales Company.

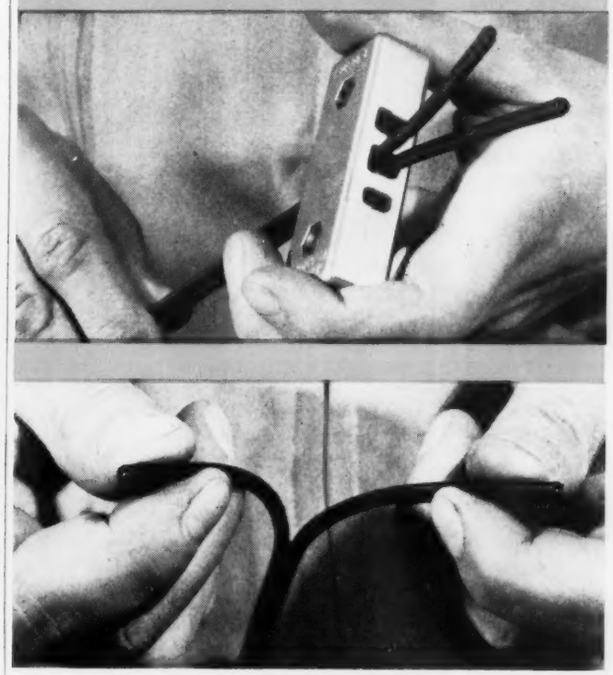
Mr. Gage, who joined the Automatic Electric group in July, 1948, graduated from Northwestern University in that year with a B.S. degree, after studies in various technical fields. He followed this with post graduate work at Northwestern in accounting and business administration. Prior to his work at Northwestern, he spent three years in the U. S. Air Force serving in the European theatre as radio operator and member of an aerial combat crew.

His first assignment with Automatic Electric was as assistant to the commercial manager in which position he was concerned with various duties of an administrative nature and with commercial policy matters. In February, 1951, he was appointed supervisor of the pricing division, with complete responsibility for the administration of that department. In September, 1952, as a result of Automatic's greatly expanded activities in the engineering and sale of carrier systems, Mr. Gage joined the sales company as assistant manager, carrier and radio sales, with responsibility for the administrative affairs of that group.

During his years with Automatic Electric, Mr. Gage has become widely familiar not only with the products and business of the company, but also with the needs of its customers

Please turn to page 110

new "Figure 8" drop wire
—quick and easy to use



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"Figure 8" construction permits separating conductors cleanly with one pull of slitting tool. Saves splicing time. Solid Neoprene insulation cannot "peel" and expose conductors during splicing or service; prevents clamp slippage, insures a trouble-free job. #18 AWG Copperweld conductors stand heavy wind and ice-loading. Join the many who are saving maintenance costs with "Figure 8!" Order a supply from any of our warehouses today.

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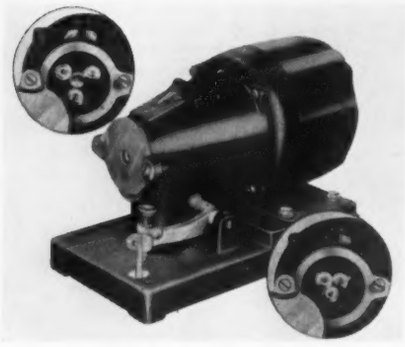
"ACOUSTI-BOOTH":—Burgess-Manning Co., Chicago, Ill. has announced the development of this New Acousti-Booth.

According to the announcement the new Model 45 Acousti-Booth combines better performance and smaller size at substantial savings to mark a significant advance in the design of doorless acoustic telephone booths.

Featuring maintenance-free, all metal construction and attractive finish, its use in noisy locations, where telephone conversation is often difficult has been demonstrated to show a reduction in loudness of 50 percent. One of the striking features of this new booth is its geometric shape which permits multiple booth installations in space-saving arrangements, against a wall, in corners, in a line, or as a circular island. — For Complete Data, Check New Product 620.



WIRE STRIPPER:—A triple-disc cutting mechanism that automatically centers the wire it strips of insulation and provides its own extra cutting edges is the feature of the High Speed Wire Stripper manufactured by High Speed Hammer Co., Inc., Rochester, N. Y.

Insulation is removed by three hardened steel discs, shown above in inset photos in open and in cutting position. The discs are angled into cutting position slightly overlapping each other. Preadjusted to cut thru the insulation, the slight pressure on the core of the wire at the intersection of the three arcs centers the work for extreme accuracy.

A new set of cutting edges is merely a matter of loosening and turning each of the three discs slightly.

The High Speed Stripper, a ¼ H.P. bench model designed for high speed production line stripping, removes all types of insulation including plastic types from solid, stranded or multi-conductor wire. Provision has been made for simple adjustments for diameters up to ½" and for strips to 1-½" in length. Performances of 3000 strips per hour have been reported. — For complete Data, Check New Product 621.

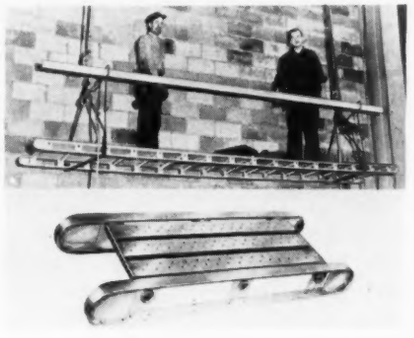
SCREW ANCHOR TOOL: — The Pengo Screw Anchor Tool is now in production by Petersen Engineering Co., Mfrs., Santa Clara, Calif. The tool is designed to slip over the pilot of any size Pengo Auger as used on any make of heavy duty earth boring machine. The eye of all leading makes of Screw Anchors or Swamp Anchors will slip into the other end of the fitting, and any size of anchor can thus be screwed into the ground in a minute or two.

Advantages claimed are that it is not necessary to remove the auger; that there is nothing to remove from the boring machine; that the fitting is small and light and can be placed over the pilot bit with one hand. When the anchor is screwed in, the tool slips off the pilot and is carried on the truck until it is needed again. Its life is indefinite, as it is nearly indestructible.

A similar tool is also in production for use on Tel-E-Lect and other makes of "A" Frame type diggers. — For Descriptive Literature and prices, Check New Product 622.

NEW ALUMINUM STAGES:—A complete line of all-aluminum stages for painting, maintenance work, construction work, etc., is now being produced by R. D. Werner Co., Inc., 295 Fifth Ave., New York 16, N. Y.

The stages are made of tempered aircraft type aluminum alloy with a deep-truss construction which the manufacturer says makes them more rigid than normally found. The manufacturer claims the 30 ft. model will support a 500 lb. weight in the center with very little deflection. These stages far exceed the strength and design requirements of most state industrial boards. Due to the deep side rail truss construction no cable trussing is necessary even in the longest stages. Thus they handle and stack easier.



The decking is of extruded aluminum strips with raised dimples that are skid-proof even when greasy or wet. The dimples are so designed that they become even more slip resistant as they wear down.

The Werner stages, being all aluminum, are rust proof and especially light considering their extra high safety factor. Prices are competitive with other metal stages and their long life makes them superior to wood stages.

They are made in a complete range of sizes from 8 ft. to 30 ft. in standard widths, 12″, 20″, 24″, 28″, to fit standard stirrups. They are available for immediate delivery from leading industrial distributors.—For Complete Data, Check New Product 623.

DIGGER: — The Acker Drill Co., Inc., Scranton, Pa., recently announced a new, medium size, all-purpose digger. According to the manufacturer, the digger is ideal for speedy digging of holes for setting telephone poles, fencing and guard rails. It is also suited for foundation work, soil sampling, tree planting, agricultural work, shallow wells, strip mining, cathodic protection of pipe lines, materials handling of sulphur, pitch, coal, ore, etc., and other earth digging requirements.

With a standard spiral auger head, the digger can bore holes up to 20″ in diameter and to depths of 10 feet. By using sectional, continuous flight augers, depths up to 75 feet can be reached. A special pavement test core attachment for cutting reinforced concrete is available.

The manufacturer claims the Acker digger is the only machine available that provides angular adjustment of the drill head in two directions and permits operation at any angle through a full 360° range. With only five moving parts in the drill head, maintenance and normal wear are reduced to an absolute minimum. Hydraulic feed gives the operator sensitive and instantaneous control of the digging at all times. A built-in hoist and sheave wheel at the top of the mast handles loads up to 750 pounds, makng the unit ideal for lifting or driving pipe. The mast can be raised or lowered by hydraulic power giving maximum road and garage clearance.

Two models are available: (1) A compact power take-off unit for jeep or power take-off truck mounting, and (2) a rugged skid-mounted unit with self-contained power plant.

The Acker power take-off unit is preferred by many users because it is extremely portable as well as lightweight. The space and weight together with the added maintenance of a separate power plant are completely eliminated. When mounted on a jeep or a small truck, the digger can be carried over the roughest terrain.

The Acker skid-mounted unit is completely self-contained with its own separate power plant. The power plant can be any stock size, standard gasoline or diesel engine. The unit is complete as delivered to the customer and can be mounted on a ¾ ton pick-up truck or larger vehicle.

A new bulletin describing this new digger is available. — Check New Product 624.

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ADVERTISING, Directories — *General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 2]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 3]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18, Ill.*—[ADV. 4]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 5]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 6]

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CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.* —[ADV. 8]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 9]

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INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 13]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.*—[ADV. 14]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 15]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 16]

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23, Pineville, La.*—[ADV. 17]

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV 18]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 19]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 20]

REBUILT TELEPHONE & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.*—[ADV. 21]

TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 22]

WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 23]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 24]

WIRE, Telephone, *for all inside and outside uses — Whitney Blake Co., New Haven, Conn.*—[ADV. 25]

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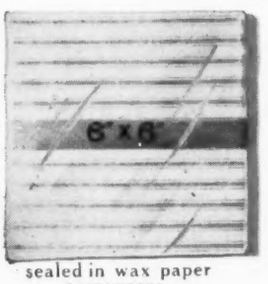

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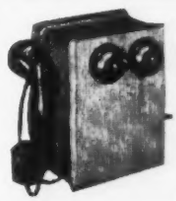

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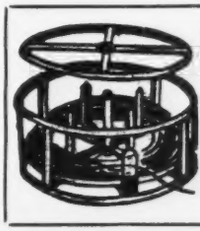

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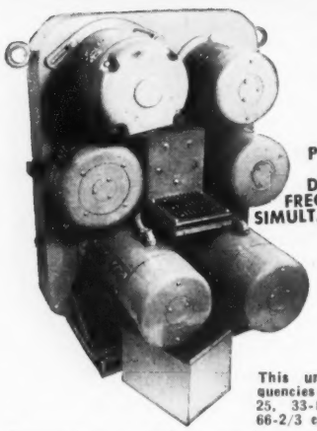

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Professor Emeritus of English, College of Engineering, University of Michigan

Third Edition, 356 pages, 5½ x 8½, 238 illustrations, $4.50

This practical guidebook takes up scores of specific points in the design and composition of the report and gives you exact directions for the setup of both long- and short-form reports, with numerous examples to guide you. In addition, the book outlines a system for the critical examination of the report to help you make sure it will meet the requirements of those who will read and use it.

Telephone Engineer Publishing Corp.

7720 Sheridan Road Chicago 40, Illinois

D. H. DEAVER was recently named assistant to H. F. Lello, president of Automatic Electric Sales Corp.

in both the telephone and industrial fields. He thus brings to his new position as manager, supply sales, a background which assures a continuation of the successful service policies which have long marked Automatic's supply sales activities.

Booklet Available on Plastiment Concrete

Plastiment Booklet: — The theory and practice of obtaining a good concrete is the subject of a new booklet, "*Plastiment Concrete Densifier*", published by *Sika Chemical Corp.*, 35 *Gregory Ave.*, *Passaic, N. J.* Beginning with the gel mechanics of cement — water reaction, the booklet discusses the factors affecting cement hydration and basic quality of concrete, and how these factors can be controlled to reduce cracking and increase concrete hardness and impermeability. The booklet covers 8 pages of engineering information, illustrated with drawings, tests, photographs and descriptions of outstanding engineering projects constructed with Plastiment concrete.

Electrical Tapes Described

Tapes: A new 12-page illustrated booklet describing "Scotch" brand electrical tapes and related electrical products for construction and maintenance has been announced by *Minnesota Mining & Manufacturing Co.*, 900 *Fauquier St.*, *St. Paul, Minn.*

The booklet discusses use of "Scotch" plastic electrical tapes Nos. 21, 22, and 33 in industrial and house wiring, appliance repair, underground cable splicing, and other heavy-duty applications.

STROMBERG-CARLSON®

transmitter

Published by the makers of Famous XY® Equipment

VOL. 3, NO. 2 MAY, 1954

Bright-Dim Monitor Lamp Operation

by Clayton W. Holden, Systems Engineering

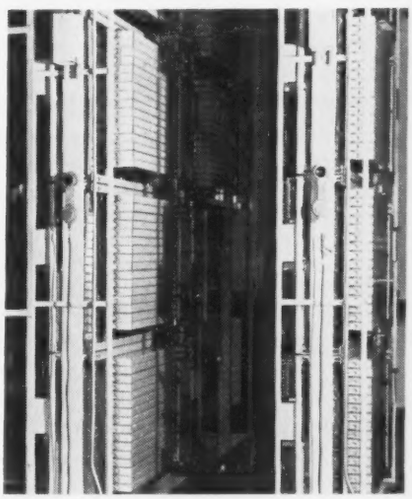
There has long been a need for some kind of an easily observed indication to show what circuits are in use and what circuits are being held by "permanents" in a dial office. The usual methods of obtaining this information are time consuming and therefore costly. As a solution to this problem, Stromberg-Carlson provides its "Bright-Dim" monitor lamps as standard equipment in XY® dial offices.

As used in this article, monitor lamps refer to the lamps mounted on the circuit plates of Stromberg-Carlson XY dial equipment. The words "bright-dim" refer to the method by which these lamps indicate the condition of the circuit. That is, the lamps indicate certain conditions by a steady bright light, and other conditions by a steady dim light.

These monitor lamps are used on the circuit plates of selectors (incoming, firsts, seconds, etc.), connectors and trunks. Each individual circuit has its own monitor lamp mounted near the right hand edge of its circuit plate. The physical location and appearance of these lamps can be seen in the photographs on this page. Their uses will be amplified after a brief description of the circuit operation.

When a circuit is seized, the monitor lamp is lighted at full brilliance. In the case of selector circuits, the lamp is dimmed when the selector switches through to the succeeding circuit and will remain dim until the circuit is released. For the dim indication, the brightness is reduced only enough to make the dim lamps easily distinguishable from the bright lamps.

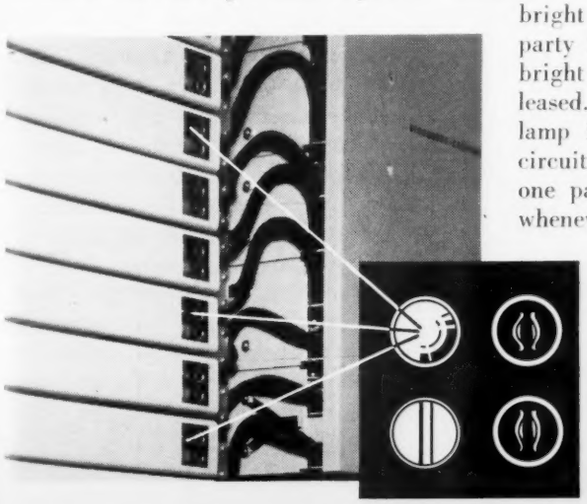
In connectors and trunk circuits, the lamp gives a bright indication when the circuit is seized and it remains bright until answering supervision is received. Upon receiving answering supervision, the lamp is dimmed and remains dim until the circuit is released or one of the parties disconnects. If the circuit is one that is held until both parties disconnect (such as a last party release connector) the lamp will become bright again when the first party hangs up and remains bright until the circuit is released. That is, the monitor lamp is bright whenever the circuit is being held by only one party and it is dimmed whenever both the called and calling parties are connected.



Switch at end of each row of XY equipment turns on all monitor lamps in that row. Switch on power board turns on monitors throughout system.

All monitor lamps in an office are turned on by a switch on the powerboard. In larger offices each row of equipment may have, in addition, a switch controlling only the monitor lamps in that particular row. Either the main monitor lamp switch at the powerboard or the individual row switches may be used to turn the lamps on when they are required for maintenance, switch counts or general observation.

From the above discussion, it is noted that the monitor lamp gives a bright indication whenever a circuit is being held by only one party. On a normal call the lamp will dim when the circuit switches through to the succeeding circuit or when the called party answers. Therefore, by visual observation of the monitor lamp it can be determined that a particular circuit is being held abnormally long



"Bright-Dim" monitor lamp (below) is mounted at right hand edge of each circuit plate (left).

by one party (the monitor lamp has remained bright). Such a condition, whether caused by a shorted cable pair or a telephone left off hook, indicates a "permanent."

All "permanents" should, of course, be cleared as soon as possible since they cut down the amount of traffic which the equipment can handle. For example, two permanents in a 100 line group, equipped with 10 linefinders, cuts down the traffic handling capabilities of that linefinder group by approximately 30%. With lockout lines, permanents are automatically disconnected from the common trunking equipment after a certain length of time. However, with non-lockout lines the "permanent" line will tie up common trunking equipment until the "permanent" is cleared or the line manually disconnected. The necessity of being able to recognize that a "permanent" exists and to locate it quickly is obvious.

A second important use of the monitor lamps is to supplement "Peg Count" and "All Trunk Busy" meters in determining the amount of traffic being handled by an exchange. A general observation of traffic can be made by merely throwing the monitor lamp switch at the powerboard and observing the percentage of circuits in use during the busy hours.

By a general observation of this nature, it is easy to see when certain groups of equipment are carrying more than their share of the office traffic. When such a fact is observed, it is usually desirable to obtain accurate traffic information before rearranging the equipment or adding additional equipment.

Accurate traffic data can be obtained by making switch counts during the busy hour. A switch count is the same as a cord count in a manual office except here you count busy switches (or circuits) instead of cords. In a dial office you may be interested not only in the overall traffic but also in the traffic of individual groups, such as connector groups. Therefore, the switch count is broken down to show the traffic in each group of equipment under consideration, or the switch count may be performed on only certain groups of equipment.

As in manual offices, switch counts are usually performed at 1 or 2 minute intervals. The shorter the interval, the more accurate the traffic information obtained. The same formulas used for manual equipment are used to convert switch counts into unit call data or traffic units.

In most types of dial equipment, it is a fairly difficult job to make a switch count because there is no easily seen indication showing that a circuit is in use, and it is practically impossible to make a general traffic observation as described above. Here again, the Stromberg-Carlson monitor lamp shows itself to advantage. You have a positive, easily seen indication that the circuit is in use. Since with this system a man does not have to hunt for an indication of a busy circuit, he can perform a switch count that might require two or three men in other types of dial offices.

In closing, the point should be stressed that "Bright-Dim" monitor lamps are a standard part of Stromberg-Carlson XY dial equipment. The switch counts and location of permanents as described above can be made with this equipment which is an integral part of each exchange. There is no expensive additional equipment involved and there is nothing to connect — just throw the monitor lamp switch on the powerboard. "Bright-Dim" monitor lamp operation is one more example of the many unique advantages of Stromberg-Carlson XY equipment.

Want to Raise Your Traffic Count 66 Percent?

Calendar — 9th day of Spring
Noon Weather Report — Rain changing to snow; 1" to 3" expected.

Scheduled Event — Dinner for snow and ice removal crews celebrating completion of their season.

Traffic count in the several exchanges of the Rochester Telephone Corporation on March 29 was up 38.2% over the previous average for the same day of the week — 984,845 calls as compared with 712,441. And during the critical period from 4 P.M. to 9 P.M. there was a 66% increase in calls! Why?

Mid-afternoon had produced six inches of heavy wet snow, and it was coming down harder all the time! By factory closing time, most cars that could get out of parking lots were choking the knee deep, cushiony wastes that once had been streets — batteries failing, gas tanks running dry. Buses struggled valiantly, but to little avail as the crowds at bus stops grew ever larger.

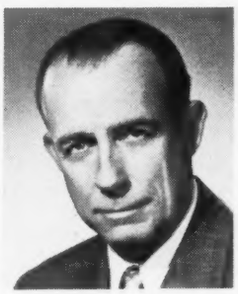
"Let's call home, or a garage, or to cancel that meeting." This was the natural and immediate reaction of everyone — all 200,000 subscribers. We asked William Pitblado and Robert Brookman, of the Traffic Department, how they made out.

Weary operators worked a second and sometimes third shift while waiting for the relief that was stranded on the way. But in true telephone tradition, no one thought of leaving until replaced. Many who were not scheduled for work called in to volunteer their services wherever needed. Daytime chief operators and supervisors stayed at their posts from 8 A.M. to midnight.

No one at Rochester Telephone Corporation would want or accept praise for the job they did, for it is just an example of what people everywhere have come to know as "The Telephone Tradition."

STROMBERG-CARLSON transmitter

MEET ROCHESTER SALES ENGINEERS
John Cornelius and Clifton Dasson



John E. Cornelius

John Cornelius still speaks with a quiet Southwestern drawl. Born in Oklahoma, his telephone career began in 1920 when he worked in the Plant Department of the Sand Springs Telephone Company, near Tulsa. Here began an association with Mr. James Thompson, guiding spirit of the United Telephone Company (of Ozark, Arkansas) which has continued to this day. As the Southwest grew, and Mr. Thompson became more and more concerned with telephone development, John rose to become Plant Superintendent of 54 exchanges.

When John came to Stromberg-Carlson fourteen years ago, to work as Sales Engineer for the Rochester Territory, it did not change this mutual understanding and respect with former associates in the United company. When Mr. Thompson was ready for dial systems at Alma and Greenwood, Arkansas, John Cornelius was asked to come in and go over final plans before the XY Systems were ordered.

In his present assignment John has earned the confidence of telephone managers in Ohio, New York and West Virginia. Sometimes his job is to guide and coordinate the development of advanced principles in telephony, such as the XY Toll Ticketing system for the Western Reserve (Ohio) Telephone Company. Another time he had to work out the best modification of a conventional system for specialized use in an industrial plant working on top-secret contracts. Again he may discover a way to serve the customer's needs in a manner that is far less costly than originally anticipated. Having been a customer for so many years, it is easy for him to look at a problem through the eyes of the manager.

There is an old saying, "If you want a job done, give it to a busy man." Both John and his wife Marjorie have given tirelessly of their after-office time to Boy and Girl Scouts, not only benefiting their two children — James 17, and Patricia 11 — but hundreds of other neighboring boys and girls. John, in the course of his duties as District Scout Commissioner, was involved in the 1953 National Jamboree. As a family they all enjoy camping, hiking and outdoor recreation.

Not everyone who attends U.S.I.T.A. conventions knows of the role John has played in them over the years. But you may be sure he'll be in Chicago in 1954, keeping quietly in the background, but looking forward to greeting his many friends from all over the country.

Clifton Dasson is so widely known as "Spike" that some have never known what his first initial stood for. Perhaps it started when, as a young lad, he used to caddy for Walter Hagen — then "Pro" at the Country Club of Rochester. It's something like his age; he just never bothers to talk about it. Many who have met "Spike" only recently will be surprised at his long service record and that before too many years he may well be the first Stromberg-Carlson employe to be retired with fifty years of continuous service. Spike preferred to cut short any discussion of after-retirement plans. "Look at the jobs on my desk right now," and he pointed to some of the new installations in work for the Rochester Telephone Corporation and for several operating companies in Pennsylvania. Examples: a large 800-line XY-PBX serving the combined needs of a hospital and a university medical center; a large department store also using an XY-PBX; the sixth exchange for an all-XY operating group; specifications for a new major dial central office in Pennsylvania.

Clifton O. Dasson

During both World Wars Spike's knowledge of telephone operation was put to good use in the service of his country. He served overseas with the Signal Corps in World War I; having played a part in the design of the equipment, he then had a chance under fire to test the merits of the product. Many were the advances in telephony and electronics as applied to communication and protective devices, during the 25 years before Spike was again asked to put his know-how at the disposal of his government. This time it was radar, at Bendix, General Electric and Mass. Institute of Technology.

Mrs. Dasson, the two sons and married daughter have had differing interests of their own. All are located near enough so that family gatherings are common and always enjoyed. Now that summer weather has returned, Spike will be getting the itch to see if he can still lay that golf ball right on the green as he used to do it when accompanying Walter Hagen around the course.

Gulf States Wins Safety Award

The Gulf States Telephone Company, Tyler, Texas received the first place Safety Award in the industrial fleet section Contest sponsored by Texas Safety Association at Dallas, Texas. The award was made during the Annual Safety Conference in March.

The fleet drivers had driven 352,012 miles with only three chargeable accidents for 1953.

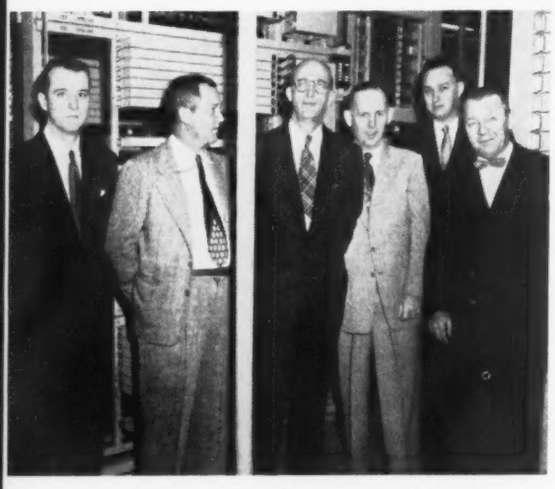
Mr. Oscar Burton, V. P., and Mr. Ben R. Fox, Personnel Manager, were present to receive the award in behalf of the fleet drivers.

STROMBERG-CARLSON transmitter

Quincy, Florida: Provident Management, City-wide Enthusiasm

"You never saw people so happy, both in the telephone company and all over the city."

This statement came from a person who had visited Quincy, Florida shortly after the telephone system was converted to Stromberg-Carlson XY dial. The extra enthusiasm was a testimonial to the many months of exhaustive study and careful planning that preceded the ordering and installation of equipment; also — and



L. to r.: Mitchell Drew, Vice-president of Quincy Telephone Co.; Howard McKinnon, St. Joe Tel. and Tel.; P. M. Schuchart, Director, Public Utilities Dept., Florida Railroad and Public Utilities Commission; Charles H. Spitz, attorney; Art Beam and George Masak, both of Stromberg-Carlson.

equally important — to the splendid public relations and instructional program with subscribers.

Mrs. Allene Drew Cantey, President of the Quincy Telephone Company, is upholding a tradition: since 1899 the residents of Quincy have enjoyed quality telephone service supplied by a member of the Drew family. The first Mitchell N. Drew acquired the property when subscribers could be counted on fingers and toes. A few years later the task of management was assumed by his widow while her son, Mitchell Drew Jr., was learning the telephone business from the ground up, and, earning the privilege of directing the companies activities.

Mitchell N. Drew, Jr., managed

4-position Stromberg-Carlson No. 3 toll board. Chief operator is Mrs. Annie Belle P. Smith.

Modern business office of Quincy Telephone Company at Quincy, Florida.

the company from 1924 to 1938. Demonstrating his faith in the future of Quincy, Mr. Drew sold his other telephone exchanges so that all efforts could be concentrated on providing the best possible service in his home community. One example of this: Quincy lines were entirely cable (mostly underground) 40 years ago. From the first his wife and son shared in the responsibilities, the plans for the future, the discouragements that are always part of the business. In 1938, for the second time, a Mrs. Drew had to pick up the reins — and did so with courage and astounding success.

Mitchell N. Drew (III) has grown up in the company and is now Vice President. A graduate of Duke University, he is thoroughly conversant with both community needs and company plans for providing the best in modern service. Tradition lives on at Quincy!

The new XY System presently serves 1900 terminals on a terminal per station basis. 2-5 numbering was selected so that Quincy is already prepared for nation-wide subscriber dialing when available. Four positions of Stromberg-Carlson No. 3 Toll Board are equipped to provide Nationwide Operator Toll Dialing to all points in the United States and Canada now included in the system. Free local service and long distance dial trunks will be provided for the satellite exchange at Greensboro, Florida. Existing cable plant was replaced with new, larger capacity cables sufficient to meet service requirements for many years to come. The fine new building is another proof that the Quincy Telephone Company is justifiably proud of its

New home of Quincy Telephone Company is as forward-looking as the Stromberg-Carlson XY equipment it houses.

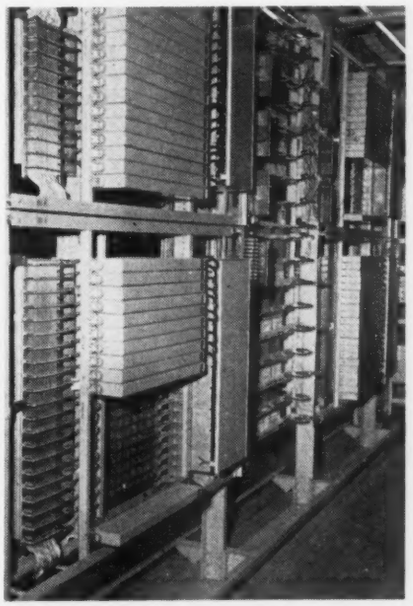
STROMBERG-CARLSON transmitter

Mrs. Allene M. D. Cantey, president of telephone company, listens as her son, Mitchell Drew, V.P., calls Phil Lucier at Stromberg-Carlson to report that cutover was proceeding smoothly.

place in the community.

The Stromberg-Carlson Credit Corporation provided the financing and assisted in survey engineering.

Mrs. Cantey and Mitchell Drew have been fortunate in the experienced personnel who have labored and planned with them. Mrs. Annie Belle Smith, chief operator, has been with the company for 36 years; her knowledge is invaluable as Nationwide Intertoll Dialing comes to Quincy. Mr. Frederick Kibilka, traffic manager and plant superintendent, installed the common battery switchboard many years ago. The present dial system is in great part the result of his studies and recommendations. Mr. Johnnie C. Byrd has supervision of the entire outside plant. Quincy and its telephone company have — and will continue to — grow together.



New equipment in Quincy exchange serves 1900 terminals on a terminal per station basis. 2-5 numbering is used in this XY system, with an eye to the future.

Granby, Missouri Celebrates 50th Year with New XY System

Sometimes a large and successful corporation is born overnight. More typical of the telephone industry is the story of slow and often discouraging progress, with crippling storms and depressions taking their toll.

Fifty years ago a group of business men in Granby, Missouri organized a telephone company to serve these two booming mining towns. Dr. J. W. Langley was active in management during the first 25 years. Mr. H. C. Stouffer acquired control in 1931 and has been active manager since. Son Dale Stouffer, following in his father's footsteps, will attend the Stromberg-Carlson XY Training School in July.

The Granby Telephone Company was one of the first twelve selected for the then new Stromberg-Carlson Loan program. When the original cut to dial was made in 1948 it was one of the first Independents in Missouri to convert its plant completely to dial service. Public acceptance was overwhelming, so that in late 1953 the increase was over 100%. This growth called for new plans and a rebuilding program which has recently been completed.

Mr. Stouffer chose the XY System as the system which grows with you. A handsome, modern addition, landscaped to enhance the appearance of the neighborhood, houses the switching equipment adjacent to the telephone company's offices.

Granby likes its telephone company, and the willingness of its management to provide the best in modern dial service. The Fiftieth Anniversary will prove a time for mutual commendation.

I'm Sorry, Neighbor!

In our correspondence with J. M. Weir, Manager of Ketchikan Public Utilities, regarding their new XY cutover (Transmitter, January 1954) we unwittingly referred to "faraway Alaska."

By Air Mail we received a letter from Mr. Weir, chiding us for this remark, and pointing out that Ketchikan is just a short 2-hour hop from Seattle.

We're neighbors, after all, separated by only a few hours travel time, as shown in this schedule:

6:09 P.M. Dinner in Rochester. Then board American Airlines flagship.

8:50 P.M. Land in Chicago stretch legs for 20 minutes, board United plane for Seattle.

5:20 A.M. Breakfast in Seattle. Then at 9:00 join Pan-American Douglas Super Clipper for last lap.

11:50 A.M. All set for lunch in Ketchikan!

STROMBERG-CARLSON transmitter

Ideas Molded into Working Models

Joe Silver, seated left, calls a planning meeting of the Model Shop team.

"Giving form to ideas" is the best description of the Model Shop at Stromberg-Carlson. The ideas may concern new products about to be introduced — mechanical vibrators, a micronscope testing outfit, the recently de-classified Black Box, key-switching telephones.

In the majority of such cases, the Model Shop is given rough sketches based on development work which started with design engineers or in the research laboratory. In giving substance to the idea, the model maker often comes up with suggestions for improvements; that so many of these suggestions are incorporated into the final model speaks well for the imaginative artistry and craftsmanship of this group.

A second and equally important function of the Model Shop is to assist in the development of improvements in existing apparatus. "Our biggest challenge," said Joseph Silver, the foreman, "comes when a design or production man walks in with a problem and asks us to come up with a solution. There were many of these problems which grew out of material shortages right after the war. Sometimes in our search for a non-critical substitute we discovered a medium which was actually superior, once we had it mastered."

Joe Silver, born and trained in England, came to Stromberg-Carlson 33 years ago. He has seen the department grow from two people to the 1945 peak of twenty-two, when models for all three Stromberg-Carlson divisions and all government contracts were handled in one shop. The present Model Shop serves the Telephone Division only, as an integral section of the Engineering Dept.

Sidney Proctor, also a product of careful British training, started his career in instrument making and ultra-precision optical work at Leeds, England, later spent four years with the British Admiralty Experimental Station. Models for telephone instruments have been his specialty for many years. Few men would have the skill, patience and steady hand for the job Sid recently completed: a working model of the housing for the new Stromberg-Carlson 1575 Telephone carved by hand, *inside and out,* from a solid block of Tenite!

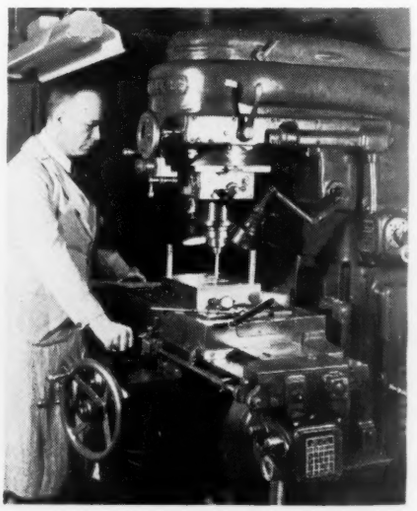
Ernest LiFeber came to the Model Shop 12 years ago after several years in switchboard assembly. His particular interest of late has been the components of the XY Switch.

Younger men, carefully chosen for their promise in this exacting skill, are taking their places along with these veterans: Forrest Jones, Charles Owings, Hugh Gioia, Harold Williams, Richard Sandle and Rolland Hall. They are learning how to work in the newer mediums — plastics, fiberglass, the "miracle alloys"— as well as in steel, brass, aluminum and wood.

"Imagination must always be present," Joe Silver summed up. "We're out on the fringe exploring. Even if our first idea backfires, we may learn something about materials or design which will be useful later on. The real satisfaction comes when you succeed in accomplishing what couldn't be done."

Ernest LiFeber has come up with a new idea for a switch component.

Sidney Proctor tries out a newly designed part for a key telephone.



Forrest Jones operates the multi-use rotary head milling machine.

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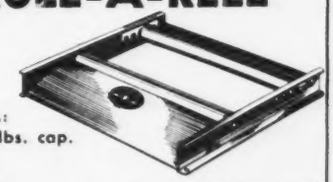

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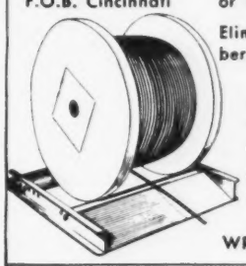

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THE BACK OF THE BOOK

BY JOHN G. REYNOLDS

Cross-Country Reports

THE UNITED PRESS reports a telephone operator of *Hammond, Ind.*, won a medal for "effective use of telephone facilities" in an emergency. She instructed a customer who was gasping for breath in his gas-filled home to "throw the phone through the window," and he did. . . . In *Minneapolis* a puzzled mother received her telephone bill shortly after having made some calls to Duluth. The calls were not listed. Even after a daughter explained the time delays of billing, the mother continued in doubt: "It's still strange that those calls aren't on this bill — they were made last week and it was only yesterday that the man was here to read the meter."

Correct Usage

CORRECT TELEPHONE usage is to identify one's self rightaway. It not only saves time but also helps to prevent any misunderstanding. A case in point is that of the irritable customer, the astonished clerk and the hungry horse.

The setting was a grain and feed store. The telephone rang.

"Send me," said an unknown voice, "a bale of hay and a sack of oats." After jotting this down, the clerk asked politely, "And whom are they for?"

"For the horse," said the angry voice, "who did you think?" And the receiver was hung up sharply.

Dept. of Free Enterprise

WHILE the industry is preparing to lay the ghost of held orders things aren't so rosy with our British cousins. In Britain, where the telephone system is operated by the government, the held order list has been growing apace. The Post Office Department reports the installation of 2,000,000 telephones since 1946. But at the end of 1953 there were 368,803 people awaiting telephone service. An average of 400,000 would-be subscribers ask for service each year.

Sleepless Britons Woo Slumber

FROM LONDON comes word that bleary-eyed Britons suffering from insomnia may get a chance to talk each other to sleep by dialing the number of "Sleepless Anonymous."

Conceived by Mrs. Raquela Bachi, 34, a lawyer's wife, the club would substitute all-night telephone conversations for the dreary process of counting sheep.

Pretty, brunette Mrs. Bachi has already figured out an index system for identifying members' telephone numbers by code and grouping them according to common backgrounds and interests.

Through her system, an insomnia sufferer who wants a bed-time chat at 4 a.m. won't know whom he's talking to but can be sure the opposite number will be interesting — and sleep-producing, if he's lucky.

Pistol Packin' Operators

WHEN NORTHWESTERN BELL converted its Beach, N. Dak., exchange to dial, the *Golden Valley News* recalled a telephone service sidelight way back when the town was in its infancy and the operators had to carry arms to defend themselves, if and when the occasion ever arose. According to the Golden Valley News, "it was necessary to have a pistol hanging over the switchboard, within easy reach of a harrassed operator."

"Nothing New"

NOW THAT COLOR TV has come to the fore, it is interesting to note that the principles governing the use of color were known as far back as 4000 B.C. According to *Long Lines Magazine*, the early Egyptians built their homes without windows to eliminate the brilliant glare of the sun in the Nile Valley. As is done today in some modern inside auditoriums, they also used strong colors to brighten their rooms and to give cool, soothing effects.

While it may have been considered as mere coincidence, in the Middle Ages, suicides from London's Blackfair Bridge were reduced one-third when the dingy black framework was painted a bright green. Lord Nelson, however, displayed sound color psychology when he had the decks of his battleships painted red. This was done not because it was his favorite color but because it made the sight of blood from battle casualties far less obvious.

So it would seem that industrialists who today study color wheels for commercial purposes are not entering an unchartered field, they are merely helping to prove an old theory that there really is "nothing new under the sun."

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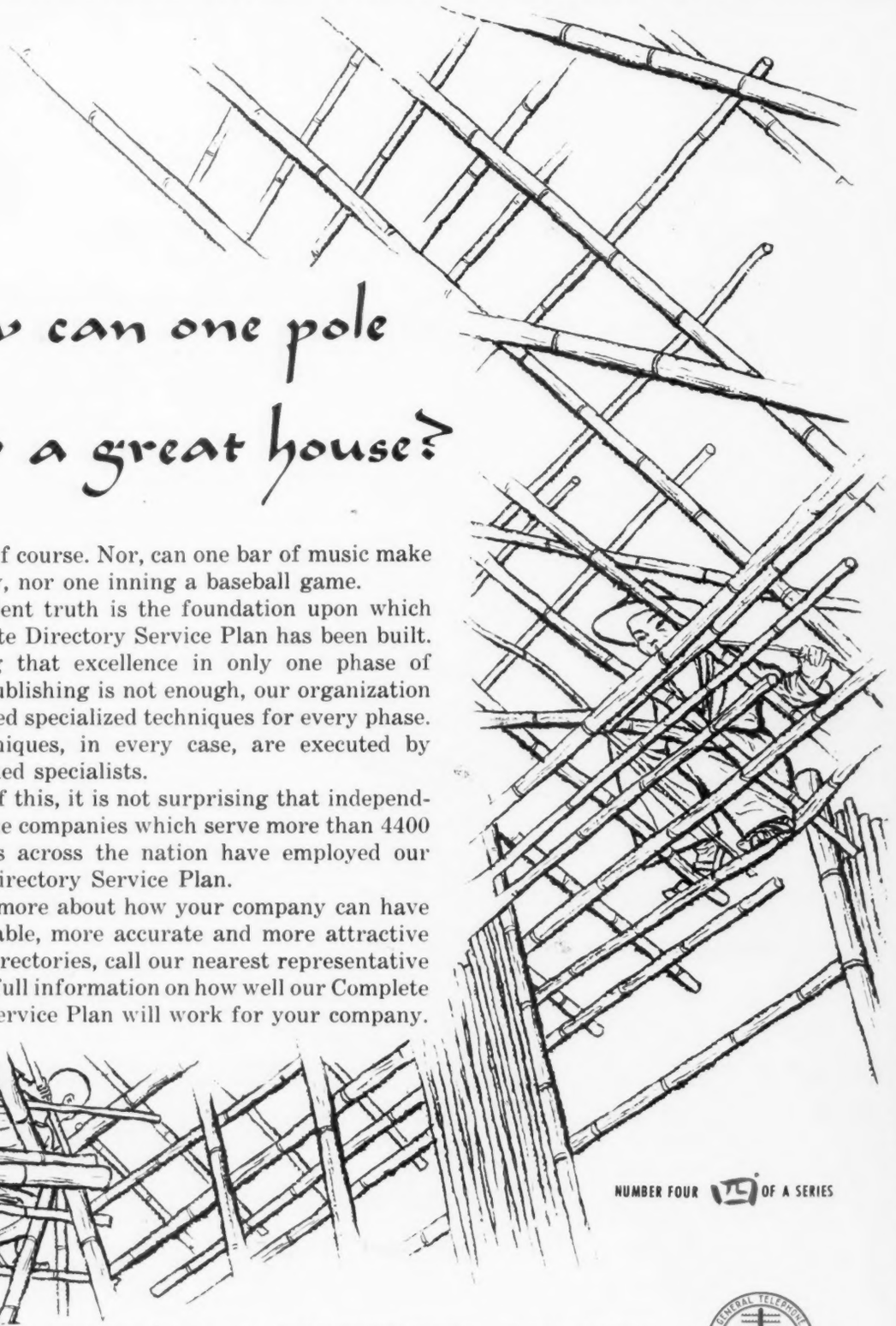

It can't, of course. Nor, can one bar of music make a symphony, nor one inning a baseball game.

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